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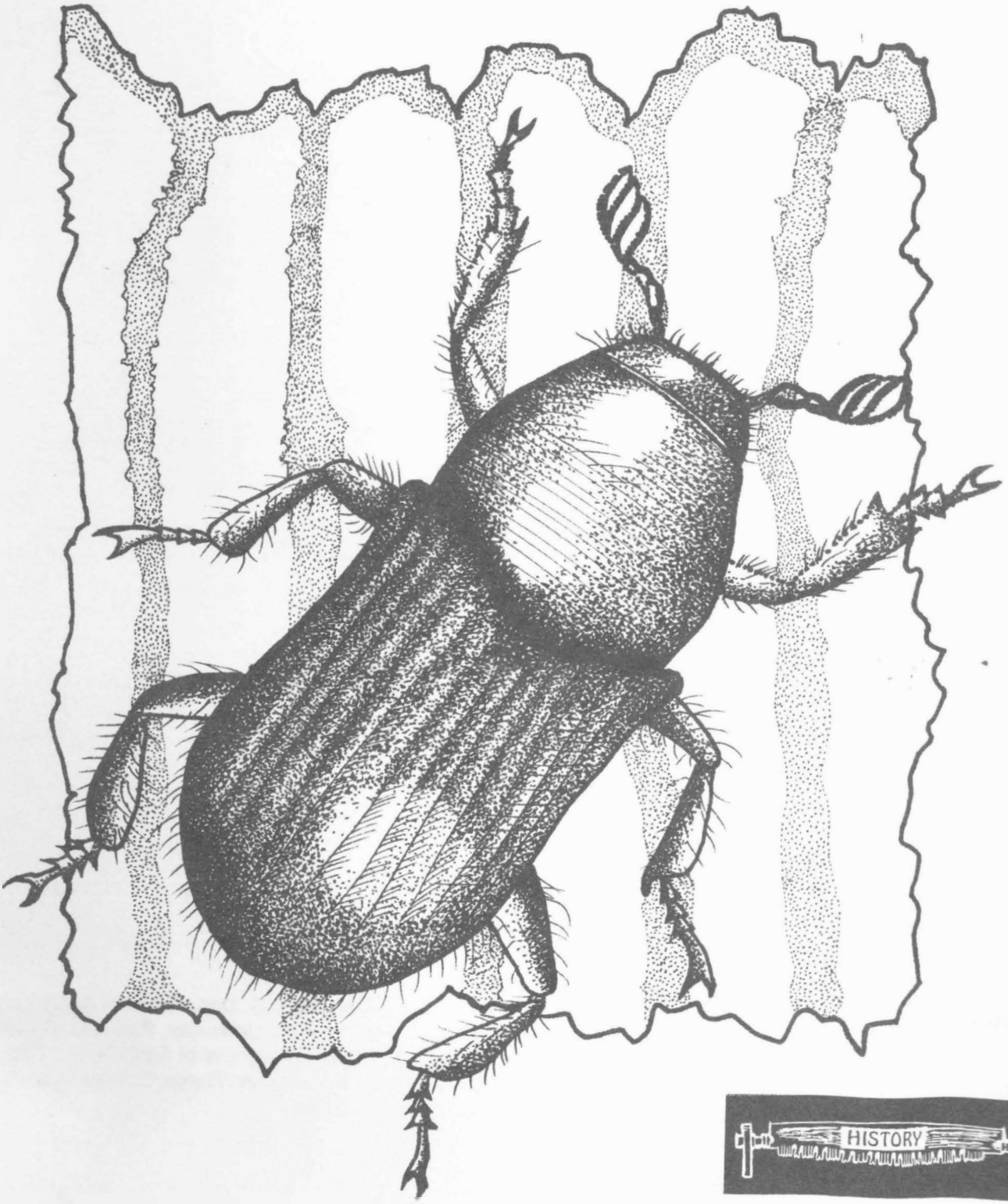
Northeastern Oregon Bark Beetle Control Project 1910-11



HISTORY

Authors

H.E. BURKE (deceased) was a forest entomologist, U.S. Department of Agriculture, Bureau of Entomology and Plant Quarantine, Stanford University, Palo Alto, California. B.E. WICKMAN is a research entomologist, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

Northeastern Oregon Bark Beetle Control Project 1910-11

H.E. Burke

Edited by B.E. Wickman

U.S. Department of Agriculture, Forest Service
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Abstract

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This history, from the memoirs of the entomologist in charge, describes the first large-scale cooperative bark beetle control project funded by Congress in the Western United States. It describes relations between the Forest Service, Bureau of Entomology, and private timber owners, how the project was organized and conducted, and results of the control measures. The editor provides information and interpretations from additional sources and human interest background on participants of this pioneering forest insect control project.

Keywords: Forest entomology, history, bark beetle, lodgepole pine, ponderosa pine.

Editor's Introduction

The Northeastern Oregon Bark Beetle Control Project is important historically because it accounted for four firsts in the battle against forest pests in the Pacific Northwest: It was the first forest-insect-control project undertaken; it was the first endeavor in which the U.S. Department of Agriculture's Bureau of Entomology and Forest Service cooperated with private timber companies; it was the first time funds were appropriated by Congress to combat a specific forest-pest outbreak; and it was the first large-scale effort to control an outbreak of the mountain pine beetle (*Dendroctonus ponderosae* (Hopkins)) in lodgepole pine (*Pinus contorta* Dougl. ex Loud.) in the United States.[1]

All these factors set precedents for future pest management and helped bring about passage of the Forest Pest Control Act of 1947 and the organization of pest-management groups in State and Federal forestry agencies.[2] The legislation established the responsibility of the Department of Agriculture to detect and appraise pest infestations and to act cooperatively with all owners in needed suppression activities. Perhaps as important was the impetus the project gave to the development of a research organization in the Bureau of Entomology to study forest insect problems in the Western States.[3]

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[1] Craighead, F.D.; Miller, J.M.; Evenden, J.C.; Keen, F.P. 1931. Control work against bark beetles in Western forests and an appraisal of its results. Journal of Forestry. 29(7): 1001-1018.

[2] Public Law 110. Approved June 25, 1947, by the 80th Congress "to provide for the protection of forests against destructive insects and diseases, and for other purposes."

[3] The Department of Agriculture was reorganized in 1953, and many of the Bureau of Entomology functions became part of the Agricultural Research Service. The Forest Service Experiment Stations inherited the various Forest Insect Investigations Divisions of the Bureau across the country. Rainwater, Clyde R.; Parencia, C.R. 1981. Chronological summary of the leaders in entomological research in the U.S. Department of Agriculture, 1853-1972. ESA Bulletin. 27(4): 247-249.

The Northeastern Oregon Bark Beetle Control Project served as operational model, training ground for rangers and entomologists, and a source of personnel for the Forest Insect Investigations Unit that had been organized in the Division of Entomology in 1902. The Division status was changed to Bureau of Entomology in 1904.

The mountain pine beetle is still a serious enemy of pine forests of the Western United States and Canada. The galleries made in the cambium layer by the feeding larvae destroy the tree's capacity to transport water and nutrients. After the larvae go through the pupal stage, the adult insects emerge from infested trees as black beetles about one-quarter inch long that seek new trees to attack and start the cycle over. Infestations in pure stands of lodgepole pine often develop rapidly and can kill every tree larger than 3 inches in diameter.[4] In Oregon, the beetle has one generation a year; the adults attack trees by boring through the bark during June, July, and August.

By midsummer, trees attacked by the bark beetle the year before have yellowish brown foliage and are easy to spot, but beetles are rapidly leaving the trees. Felling and burning such trees at that time would destroy few if any beetles. Control operations using the fell-burn technique therefore were timed for late fall, after new beetle attacks, or for spring, before emerging beetle flights. To spot infested trees during this period requires a careful check of all trees for reddish boring dust exuding from the bark on the lower bole. In 1910, the method of treatment was to fell the trees, cut the bole into logs, and then pile and burn the logs sufficiently to destroy the bark and beetles.

The bark beetle outbreak covered in this account was not a discrete infestation in either time or space. As early as 1906-7, foresters in most of northeastern Oregon and on the Payette National Forest in Idaho were observing large groups of pine trees being killed by the mountain pine beetle. By 1910, enough public and political interest had been aroused to support control of the pest in Oregon. The Northeastern Oregon Project was a result of this interest, but the area west of Baker that was treated included only a small portion of the trees being killed throughout eastern Oregon. The Northeastern Oregon Project was only the small beginning of a series of projects that later extended south to northern California and continued into the early 1930's.

The mountain pine beetle is still a killer of dense, pole-size and overmature pine forests in the West. Serious outbreaks of the insect have occurred in various parts of northeastern and central Oregon since 1974. Preventing outbreaks by thinning and harvesting stands before they reach a susceptible age are the current management options rather than the fell-and-burn technique used in 1911.

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[4] Struble, George R.; Johnson, Philip C. 1967. The mountain pine beetle. Revised. Forest Pest Leafl. 2. Washington, DC: U.S. Department of Agriculture, Forest Service. 4 p.

This documentation of the Northeastern Oregon Bark Beetle Control Project is based on the unpublished memoirs of Harry E. Burke, an entomologist who headed the project.[5] Burke was a pioneer in western forest entomology as a first-time recorder of new pest problems, as a researcher and as an administrator. He was born May 19, 1878, at Paradise Valley, north of Winnemucca, Nevada.[6] His parents had come the previous year from California to settle on the frontier. Their plans were changed by the Paiute Indians; when Harry was only 6 weeks old, an Indian raid prompted the family to move to the more peaceful Santa Clara Valley in California. In 1881, the family moved to Washington near Kent. Harry spent his youth there and attended Washington Agricultural College and School of Science (now Washington State University) at Pullman for 5 years. He obtained a Bachelor of Science in zoology in 1902 and a master's degree in the same subject in 1908. He received his Ph.D. in entomology from Stanford University in 1923.

In October 1902, he was appointed assistant forest expert in the Bureau of Forestry and promptly was detailed to work as one of the first two assistants to Dr. A.D. Hopkins, Chief of Forest Insect Investigations in the Division of Entomology. Hopkins is now considered the father of American forest entomology.[7]

In 1904 when the Division of Entomology became a Bureau, Burke was transferred from the Bureau of Forestry and appointed a temporary field agent in the Bureau of Entomology. A comment on the appointment from his memoirs indicated his satisfaction: "This was a promotion in salary from $600 to $1,200 per annum and was the realization of one of my youthful ambitions to have a government job at $100 per month."

After heading up the Northeastern Oregon Bark Beetle Project in 1910-11, Burke became leader of Forest Insect Investigations, Pacific Slope Station, a position he held until 1916.[8]

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[5] Burke, H.E. 1946. My recollections of the first years in forest entomology. Unpublished report, June 28, 1946, 37 p. Forest Insect Investigations, Bureau of Entomology and Plant Quarantine. On file with: Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

[6] Eaton, Charles B.; Keen, F.P. 1964. Harry E. Burke, 1878-1963. Journal of Economic Entomology. 57(4): 613-614.

[7] Snyder, T.G.; Middleton, W.; Keen. F.P. 1923. The progress of forest entomology in the United States. Journal of Economic Entomology. 16(5): 412-420.

[8] Wickman, Boyd E. 1987. Early forest insect research in the Pacific Northwest: the Ashland Field Station, 1912 to 1925. Oregon Historical Quarterly. 88(1): 27-48.

In 1917, Burke was assigned to the USDA Shade Tree Insect Laboratory in Los Gatos, California (relocated in Palo Alto about 1925), and remained there until his retirement in 1934. He was 84 when he died on March 26, 1963, in Los Gatos. His interests and broad experience resulted in many noteworthy reports and publications on the most important forest-insect pests in the West. Active in professional societies, he was an important influence on many new forest entomologists. He was a coauthor of one of the early textbooks on forest entomology in the United States.[9]

After he retired, Burke's colleagues encouraged him to write his memoirs, a task he completed in 1946. The California Forest Insect Investigation's Unit of the Bureau of Entomology, located at the University of California at Berkeley at that time, undertook the job of duplicating, assembling, and distributing a limited number of copies. One of my first tasks as a student and part-time worker in 1948 was to assemble copies of the memoirs. It is a pity that the complete memoirs have never been published. They were an invaluable source for an earlier article on forest entomology published by the Oregon Historical Quarterly.[10]

This report is one of a series of historical accounts being published by the Pacific Northwest Research Station. Here, it allows Burke's text to be taken verbatim from his unpublished manuscript.[11] My comments, indented in the text, are interspersed throughout the story to clarify some points, put them in perspective, and add background.

BOYD E. WICKMAN
La Grande, Oregon
March 17, 1989

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[9] Doane, R. W.; VanDyke, E.C.; Chamberlin, W.J.; Burke, H.E. 1936. Forest insects. New York: McGraw-Hill Book Co. 463 p.

[10] See footnote 8.

[11] See footnote 5.

Northeastern Oregon Bark Beetle Control Project 1910-11

According to Burke's recollections, the Northeastern Oregon Bark Beetle Control Project of 1910-11 really began in 1907.

"The field season of 1907 from May 31 to October 24 was given over to a series of studies in northern and southern Utah with trips to Joseph, Oregon, and to Palo Alto and Pacific Grove, California. The results of the 1907 season were the recording of numerous observations and the determination of important points in the biology of the mountain pine beetle, the western pine beetle, and the red turpentine beetle. A new Pissodes, afterwards described as *burkei* by Dr. Hopkins, was discovered attacking the trunks of living alpine fir near Kamas, Utah. An infestation of the mountain pine beetle found near Joseph, Oregon, was one of the starting points of the great northeastern Oregon epidemic which killed millions of lodgepole and yellow pines during the next five years.

"The Northeastern Oregon Forest Insect Control Project really started August 17, 1907, when at the request of Supervisor Howard O'Brian of the Imnaha (Wallowa) N.F. I examined dying lodgepole and yellow pine on the divide between Little Sheep and Big Sheep Creek near Joseph, Oregon. The mountain pine beetle was found to be the main depredator, but the western pine beetle was also present in the yellow pine [ponderosa pine]. During the preceding three years, 90 to 95 percent of the lodgepole and much of the yellow pine had been killed on an area of over 100,000 acres.

"During the spring of 1910 W.C. Calder, an agent of the Wallowa Timber Company of Warren, Pennsylvania, stationed at Baker, Oregon, became alarmed at the dying yellow pine near Baker and started a movement among the private owners to have something done about it. From the Forest Service he heard of the Office of Forest Insect Investigations and started corresponding with Dr. A.D. Hopkins. Forest Ranger W.D. Edmonston of Colorado and I were ordered to Baker to represent the Bureau of Entomology at a meeting of private owners, forest officials and others interested in protecting the timber. Private owners from Baker, La Grande, Portland and Spokane were present and forest officers from Portland and Sumpter [Whitman] National Forest."

The Sumpter newspaper noticed Calder's comings and goings. The *Blue Mountain American* for June 18, 1910, reported "...W.C. Calder, the timber man was up from Baker City Tuesday taking a drive in the country." He was probably examining mountain pine beetle infestations.

"May 15, 1910, the party traveled to Anthony Creek in the Whitman National Forest and examined the infested timber. The mountain pine beetle was found to be the main depredator in both the lodgepole and the yellow pine. The western pine beetle was found in the yellow pine, especially in the larger trees, usually in the bark left unattacked by the mountain pine beetle.

"May 16 the party went to Austin on the divide between the Powder and the John Day rivers. Around Austin where the forest was mostly yellow pine the dying timber was rather scattered and mostly the work of the western pine beetle. As a result of these meetings, Forest Assistant B.T. Harvey and Forest Ranger R.E. Smith were detailed to work under my supervision and make examinations of the Wallowa National Forest and the Whitman Forest to determine just where the infestations were and just how many trees were infested. Ranger Edmonston went to Medical Springs to examine the timber on private holdings adjacent to the Wallowa Forest."

Harvey did a prodigious amount of travel, mostly by foot and horseback, over the Malheur, Deschutes, Wallowa, and Wenaha National Forests during the months of June and July 1910. His reports are well written and comprehensive, although a bit pedantic. Nowhere do they mention that the work is under the direction of Burke or the Bureau of Entomology. In a letter to Burke on November 22, 1910, Hopkins pointedly objected to Harvey's reporting on the more technical aspects and making control recommendations: "...All the matter relating to the life history and habits of the insects with explanation of supposed causes for certain peculiarities of attack, etc., is entirely out of place in a report which is supposed to deal with the forester's part of the cooperative work. It is of little or no value to us, and, of course, can not be of value to the Forest Service on account of their unscientific methods of confusing their conclusions based on original observations with those based on authentic sources of information without indicating the existence of such information."

R.E. Smith's report on the Whitman National Forest outbreak area, by contrast, makes it very clear that he was detailed to this work by the Forest Service and that he reports to Burke and the Bureau of Entomology. The picture of Harvey as a "loner" begins to emerge. This perhaps relates to later events in his career as mentioned by Burke later in this story.[1]

"Following these meetings, I moved to Sumpter to make headquarters for the project and to demonstrate to the private owners and visiting forest officials the infesting insects and their work. Investigative trips were made through the infested areas in both the Whitman and Wallowa Forests."

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[1] Unpublished letters, reports, and documents on "Northeastern Oregon project amended project 38, 1911: control of insect depredations in public and private forests." [Jan. 21, 1911.] On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

Burke married the former Marian J. Armstrong in Washington, DC, in 1907. He fathered four daughters and a son,[2] but nowhere in his personal recollections or official reports is there any mention of whether his family accompanied him in the field or kept a permanent residence elsewhere. A brief note in the Sumpter newspaper, the *Blue Mountain American*, for August 6, 1910, indicates that Mrs. Burke and perhaps one or two children were with him during the Northeastern Oregon Project in 1910: "H.E. Burke and family who have been in Sumpter the past few months departed Thursday evening for La Grande. Mr. Burke is in the government service being an entomologist and has been studying the beetle pest with which certain parts of the National Forest is infested."

"By July 1 it was determined that the infestation was widespread, involving at least 2,000,000 infested trees, and that the infesting insects were so far advanced that no effective control work could be done on the 1909-1910 infesting broods. It was decided to spend the summer studying the infestation and working with the various owners to convince them that a cooperative control project was practical against the infestation developing during the 1910 season.

"Forest Ranger Edmonston was made an Agent and Expert in the Bureau of Entomology and transferred from the Forest Service. Edmonston arrived in Baker several days before May 15, 1910, and in company with the Whitman Forest officials examined the infested area west of Baker and selected the Anthony Creek area as the proper one for demonstrating to the private owners the seriousness of the infestation. After the trips with the private owners and others to Anthony Creek on the 15th and to Austin on the 16th, Edmonston spent some time at Medical Springs examining private holdings on the Wallowa Forest. Later trips were made through both the Wallowa and Whitman Forests. After July 1, when it was decided that no control would be undertaken against the 1909 broods, Edmonston spent most of July and August at Sumpter and Joseph cruising infested areas. About September 1, Sumpter was made his headquarters and he cooperated with the forest officials in working up plans for fall control."

In addition to being a technical expert, Edmonston was involved in local public relations. He no doubt provided the Sumpter *Blue Mountain American* with information on the control work, as this excerpt from a front-page article indicates. "The aristocratic name of this little bug or beetle is Denny Dendroctonus, and the work of these small bugs on the forests is doing great damage to the timber, in some sections threatening the entire destruction of forests. Fortunately their work is usually confined to the lodgepole pine, though at times they attack commercial timber. The bugs work on a tree by boring through the bark of a tree to the sap; then eating along under the bark, it frequently completely girdles a tree, and the tree soon withers and dies. In this way hundreds of trees have been killed in the affected area where war is to be waged against the insects."

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[2] See footnote 6 in Editor's Introduction.

On page 2 the humorous if incorrect name of the bark beetle came to light with a little ditty by Edmonston that appeared in the *Blue Mountain American* (Sumpter, Oregon) for March 9, 1911.

A Bugland Lullaby

Once an old beetle Dendroctonus
Determined the world he would see,
So he left the dead tree in the forest
With his wife and Denny the Wee.
They travelled far over the mesa,
And loitered along the way,
But arrived at a likely pine forest,
Just at the close of day.
Hush-a-by, lull-a-by, sleep for the birds haven't gotten us;
Hush-a-by, lull-a-by, dear little baby Dendroctonus.
The whispering breeze in the branches
Drove the wandering desire away,
And Daddy Beetle Dendroctonus
Decided he'd locate and stay.
So into a tree he went drilling,
Deep in a tree that stood high,
And dug out some channels adjoining
For little Dendrocton and I.
Hush-a-by, lull-a-by, sleep in your beetly thoughtlessness;
Hush-a-by, lull-a-by, dear little Denny Dendroctonus.
Soon the dead leaves will be falling;
Soon this big tree will decay;

and you will wax strong on its
falling,
for that's the Dendroctonus way.
Soon you'll grow up and go drilling,
Over the woods as you please,
Leaving behind a gaunt pathway,
Of fading, withering trees.
Hush-a-by, lull-a-by, sleep for the
Ranger's forgotten us;
Hush-a-by, lull-a-by, dear little
Denny Dendroctonus.

—W.D. Edmonston

"August 3, Agent W.B. Turner of the Bureau arrived from Washington, DC, with instructions to work with the private owners of timber and help them to organize and work for an appropriation for forest insect control work in the area. September 1, Baker was made headquarters for the project and Turner and myself located there.[3]

"September 18, various private timber owners organized the Baker Forest Protective Association and determined to undertake forest insect control.

"Control work started on the Northeastern Oregon Project on October 28, 1910, with the establishment of one camp by the Baker Forest Protective Association in private timber at Cold Springs near Lockharts and one camp by the Forest Service in the Whitman National Forest on Wind Creek near Sumpter."

Actually control work could have started weeks earlier, but the association neglected to collect its assessments from members to finance the work. The Forest Service then waited—perhaps a little distrustfully—for association financing before starting their work. When they did start, they pulled the camp manager, Ranger Smith, off the project temporarily for other Forest Service duties, while Edmonston struggled to keep the project going.

The headaches of knitting a truly cooperative effort had begun. Differences in philosophy and priorities between the Bureau of Entomology and the Forest Service were beginning to cause friction and rivalries that ultimately required intervention from Washington, DC.[4]

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[3] On this date, Dr. Hopkins also called for an important meeting at Baker City to discuss cooperative control efforts. A copy of the broadside is included in the appendix.

[4] Burke, H.E. 1911. Preliminary report on the control work on the Northeastern Oregon project. Fall of 1910. [January 12, 1911.] Unpublished report. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

"The primary object of these camps was the training of cruisers and foremen for the main control camps that were expected to be started in the spring of 1911 and to experiment with several methods of control.

"The Association camp consisted of E.L. Gerber, manager; E.J. Maberry, cruiser-foreman; four woodsmen; one cook; Agent W.B. Turner; and Expert H.E. Burke. One of the woodsmen, J.J. Sullivan, became an entomological ranger and was with the Bureau for a number of years.

"Instruction started immediately with the cruising of the timber and the plotting and marking of the infested trees. After six days of cruising instruction was given in the proper methods of destroying the infesting insects. Infested trees were felled and peeled, felled and scored on top, and felled and burned.[5] Cruising was then continued until November 12 when treatment was taken up again and continued until November 27 when a deep fall of snow caused the closing of the camp for the winter.

"The Forest Service camp was composed of Ranger R.E. Smith, manager; from 2 to 13 woodsmen; one cook; and Expert W.D. Edmonston. On reporting for work on October 27, the men were instructed in the determination of insect-infested trees and in the methods of treating them by Expert Edmonston and Ranger Smith. Due to the heavier infestation, most of it in lodgepole, spotting and treating went on together. Edmonston could mark enough infested trees in a few hours to keep the crew busy treating for a day or more. Their camp was closed November 19 because of heavy snow."

> I relocated and photographed this camp site in summer 1986. It was named "Camp Fidelity," according to Smith's map of the area, because some mining claims nearby were called Fidelity. A total of 1,120 trees were cut down and treated at an average cost of $0.70 per tree.[6]

"The Association covered 3,640 acres and treated 723 merchantable trees and 130 saplings at a cost of $806. One hundred of the trees treated were lodgepole. The Service covered 340 acres and treated 1,120 trees; 1,056 of the trees treated were lodgepole, 61 were yellow pine, and 3 were white-barked pine. The 61 yellow pine were merchantable, but most of the others were not considered so though many of the lodgepole were large and looked like good timber.

"Control work during the spring of 1911

I spent the winter of 1910-11 in Baker, Oregon, consulting with timber owners and working up data and plans. Edmonston stayed in Sumpter at the headquarters of the Whitman Forest to assist the forest officers. Turner returned to Washington to help present the project to the Bureau and to Congress."

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[5] This was the first project to use the fell-and-burn method of bark beetle control as recommended by Dr. Hopkins. See footnote 7 in Editor's Introduction.

[6] Smith, R.E. 1910. Final report of insect control, for the fall of 1910, ending November 19, 1910. November 30, 1910. Unpublished report. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

The shortcomings in Agency cooperation that had actually begun early in the spring of 1910 were reported by Burke to his chief, Hopkins, and resulted in a flurry of letters and meetings in April 1910 between Hopkins and H.S. Graves, Chief of the Forest Service, in Washington, DC. One meeting took place at the popular Cosmos Club and resulted in Graves writing to Hopkins, "...I read over your memorandum of our conversation at the Cosmos. In the account of my statement there are a number of errors which I will correct and show to you as soon as I have an opportunity. They do not matter much as long as we are able to get together on the general proposition." Hopkins tactfully replied, "...I was doubtful about some of the features in our conference and am glad that you will correct them. I agree with you heartily that the thing is to get together on the main proposition and proceed to kill the beetles."

Hopkins was evidently a strong individual who was going to insist that Bureau of Entomology personnel remain in charge of forest-insect-control projects on Federal lands. It was also evident that at least some Forest Service people resented this intrusion of nonforesters into their domain. Hopkins insisted, on recommendation from Burke, that only one technical expert be in charge of a control project and that that person be an entomologist, namely, Burke. Hopkins and Burke also felt strongly that Forest Service personnel assigned to the project should be of high caliber and remain on the project for the duration and not be pulled off to take care of other forest management demands as Ranger Smith had been in 1910.

Chief Forester Graves acceded to the first request but resisted having his foresters so tightly restricted from carrying out other duties. In a letter to District Forester Chapman in Portland, Oregon, Graves wrote, "...I enclose a copy of Doctor Hopkin's plan for this project. I approve of the general plan, but think that the form of the agreement is too rigid in the matter of agreeing in advance to devote to this work certain of our men. I think a better plan would be to find out just how much money must be expended, and then arrange to put the men on the work. I fear that Doctor Hopkin's plan might result in a conflict of work on the part of such Rangers or other officers as might be supposed to devote part of their time to it. It would be better to have a man specially assigned to the whole time."

To resolve this apparent impasse, the Federal bureaucracy by winter 1911 produced a thick stack of agreements (called supplements to Project Number 38), eventually signed by everybody up to the Secretary of Agriculture. The agreement very rigidly spelled out responsibilities and personnel assignments.

Henry S. Graves was new as Chief Forester of the Forest Service, having been appointed a few months before this exchange of letters from his position as dean of the Yale School of Forestry. He had been a long-time associate of Gifford Pinchot, who was dismissed as Chief Forester by President Taft in 1910. Graves' relationship with Pinchot began when he (Graves) was an undergraduate at Yale. Graves became a member of Pinchot's forestry consulting firm in 1896 and became Assistant Chief of the Division of Forestry under Pinchot in 1898. In 1900, Graves was hired as dean of the Yale School of Forestry, largely through the influence of the Pinchot family. When he replaced Pinchot as Chief Forester in early 1910, he no doubt had many more things on his mind than humoring Hopkins or worrying about a bark beetle problem in faraway Oregon. But, Graves had an ecological bent. He had seen the beginnings of the large bark beetle outbreaks in the Black Hills in 1897 and was sympathetic to the need to combat the mountain pine beetle in Oregon.[7] I have copies of letters that indicate he was diplomatic and gentlemanly in his dealings with Hopkins.[8]

The private landowners were also having difficulties. The main problem was that there were so many small landowners; they were hard to locate or they were absentee owners. There was also quite a bit of distrust among landowners, so getting signed agreements and assessments from everybody was hard. An attitude of "I'll do it if he does it" seemed to be prevalent. Turner evidently did an excellent job of lining up agreements and support from private landowners, and a cooperative agreement for the project was signed by many parties.[9]

"February 8 and 9 Edmonston and I made a trip to the Highland Mine in the mountains east of Haines. Fifty percent of all the lodgepole over 10 inches in diameter were found infested by the mountain pine beetle and a number of Engelmann spruce by the Engelmann spruce beetle.

"During the winter Congress appropriated money for forest insect control and on March 8, $15,000 was allotted to the Whitman."[10]

In Sumpter, the economic advantage of having the control work nearby was recognized. The Sumpter *Blue Mountain American* editorialized on April 16, 1911, "...Between the logging camps and the bug hunters there is no reason why all laborers should not have employment at this place this summer."

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[7] Graves, Henry S. 1965. Early days with Gifford Pinchot. Journal of Forestry. 63:585-586.

Clary, David A. 1979. Historic structure report: Grey Towers. FS-327. [Location of publisher unknown]: U.S. Department of Agriculture, Forest Service: 1-7, 40-41.

[8] See footnote 1.

[9] See footnote 1.

[10] This was the first funding provided by Congress specifically for a Forest Insect Control project in the West. Burke was in error on the amount; actually $25,000 was allotted.

"Dr. Hopkins spent March 25-30 at Baker looking over the project area and talking over plans for the work. Agent Turner arrived in Baker April 1 and started at once to work up cooperation among the owners and to assist the Baker Forest Protective Association."

Some of the controversy between the Forest Service and Bureau of Entomology was also stirred up by B.T. Harvey, the forester assigned to do insect surveys for Burke in 1910. He wrote an anonymous, long, detailed newspaper article that was highly critical of the Forest Service's lack of activity to control the bark beetle outbreak earlier. Statements like "the Forest Service is inactive" and "the Forest Service practically refused to start control work on the great insect-infested areas of the public forest reserves until the private owners would attempt something with which they were unfamilar though very willing to take up when proper methods are shown them. This attitude is certainly a very peculiar one for the Forest Service to assume." This article appeared in the *Sunday Oregonian*, Portland, January 29, 1911. This reply by District Forester George H. Cecil was strongly worded and appeared in the *Oregon Daily Journal*, Portland, February 13, 1911: "The Forest Service resents recent intimations of a local morning paper that its representatives are doing nothing to combat a pest of bark beetles which has been killing great quantities of timber in eastern Oregon." Cecil then went on to give the Forest Service version of the development of the bark beetle control effort in northeastern Oregon and the fact that it had carried out a small control project the year before on the Ochoco Forest.

The newspaper articles also prompted a letter from Burke to Hopkins on February 16, 1911, about the bark beetle control conducted by the Forest Service in 1910 on a portion of the Ochoco National Forest (in 1910, part of the Deschutes National Forest).

Burke wrote, "Enclosed you will find a clipping that is an attempt to answer the *Oregonian* article. In it are some features that should be taken up with the Forester. It says that control work was done in the Deschutes Forest last year at a cost of $104 an acre. In the Field Program for October 1909, page 124, there is a Service order that says that all control work shall be done under advice, that we shall be notified of its occurence and that we shall be furnished a copy of the results. In this case none of this order was carried out. The order may be forgotten so it would be a good idea to have the Forester publish it in the next Program and advise the District Foresters. It would also be well to have our address published as Brunner's is. The statement that it costs $104 to treat an acre is grossly misleading and should be answered. Can't you write a circular letter for the newspaper that could be sent to them stating the actual facts. If we let statements like that stand it will scare some of the owners away."

The *Oregon Journal* article by Cecil also prompted a letter from the Chief of the Bureau of Entomology, L.O. Howard, to Forest Service Chief H.S. Graves on March 1, 1911. "In a clipping from a Portland, Oregon, paper which has been brought to my attention, a Forest Service official is made to say, in discussing insect control work, 'Some work of this kind, yet on a small scale, under rather favorable conditions on the Deschutes National Forest last year cost as high as $104.00 an acre.' We would be pleased to have whatever data is in your possession relating to insect control work carried on by the Service on the Deschutes Forest."

On April 5, 1911, A.F. Potter, Associate Chief Forester, replied to Howard with an explanation and some statistics, namely that the work was confined to just 1 acre and was carried out with 1 to 2 feet of snow on the ground, thus the high cost. Interestingly, neither Howard or Potter mentioned that the Forest Service control work on the Deschutes National Forest was carried out contrary to policy. And to compound the situation, the Forest Service continued the control work on the Deschutes at Badger Creek Ranger station (which became part of the Ochoco National Forest in 1911) in 1912 and 1913, apparently without the knowledge or blessing of the Bureau of Entomology.

This was a strange situation that I cannot explain with records available today. Because Hopkins did not pursue the matter, perhaps Burke felt that the policy implications should be dropped, especially after Hopkins' short letter of May 2, 1911, to Burke cryptically stated, "...I am enclosing herewith copy of a letter from Mr. Potter which will explain the matter referred to in the clipping. You can draw your own conclusions."

Harvey probably wrote the first newspaper article in a state of pique, because he had been asked to resign from the Forest Service in November 1910, according to Burke in a November 16, 1910, letter to Hopkins. Burke states in that letter, "...In these reports [insect survey reports mentioned earlier] you must excuse Harvey for some of the features because the Portland office [Forest Service] was continually after him to put them in. He has showed me a number of letters that passed between them and from all that I can find out he has been dismissed because he followed more of our directions than theirs and got more of the information that we wanted. ...In short, he was supposed to be under our direction, but in reality was getting them from several sources."[11]

Harvey was hired by the Bureau in 1912, after the Northeastern Oregon Project was completed. The Forest Service might have felt that the Bureau of Entomology, through Harvey's newpaper article, had a hand in the bad publicity for the Forest Service.

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[11] See footnote 1.

At any rate, the two organizations formalized their cooperative agreement with each other and the private owners, and under the headline "Pest War Planned", dated April 5, 1911, Washington, DC, the *Portland Morning Journal* reported that the Forest Service had been allotted $25,000 to start "aggressive control work against the pine-destroying beetle in northeastern Oregon just as soon as the weather conditions permit."

The article concluded with a factual account of the cooperative structure of the organization: "The co-operative understanding between the bureau and the representatives of the Federal, state and private interests in this undertaking is: First—That the Bureau of Entomology pays the salaries of the agents and experts assigned to the work on the project; the expert in charge of the branch of forest insect investigations makes or approves the recommendations as to the methods of procedure, and the local expert in charge of the project gives the required technical advice, instructions and directions in the carrying out of the details, which are essential to economy and efficiency in the attainment of the desired control of the depredating insects.

"Second—That each co-operating Federal, state or private interest provides and controls its funds for its share of the expenses and provides the men necessary for the performance of the actual control work under the immediate instructions of the expert in charge of the project, or such other authorized by him to give instructions.

"In this manner all the co-operating interests work for a definite common purpose under the instructions of experts who know what is required and where and how the work should be done to accomplish the desired control with the greatest economy of time and money."

"Control work started April 5, 1911, with the establishment of Forest Service Camp 1 on Deer Creek near Sumpter. Camp 2 was started April 6 on Anthony Creek near North Powder. These two camps were used as training camps for training foremen and cruisers for the other camps. Edmonston had charge of the control work in the field for the Bureau and Assistant Ranger Ephriam Barnes for the Forest Service."

The Sumpter *Blue Mountain American* for April 13, 1911, announced the start of control work: "**WAGE WAR ON BEETLES-Bug Hunters Establish Camp on Deer Creek-Forest Service Has $25,000 to Expend In Eastern Oregon**—Forest Supervisor Henry Ireland has one fully established camp of 'bug hunters,' working about eight miles from Sumpter on Deer Creek. There are from 12 to 15 men in the camp, and other camps will be established as soon as weather conditions will permit. The men in these camps work under the direction of officers of the Bureau of Entomology, and their purpose is to destroy the pine beetle, or at least control the work of the insect that is threatening destruction to large areas of the forests of Eastern Oregon."

In the midst of the project, Forest Service manager Ephriam Barnes also had time for courtship and marriage, as recorded in the Sumpter *Blue Mountain American* for May 11, 1911: "**Barnes-Cummins**—Married at Baker, Monday, 8th, 1911, M. Elsie Cummins and Ephriam Barnes, of Sumpter. This is an announcement that took the Sumpter friends of the young couple by surprise the first of the week. But few of their friends here were in on the secret, and when it was learned they had been married, preparations were made for their reception at the depot on the return to Sumpter Tuesday morning. That this reception was a royal one goes without saying. While rice and old shoes were seen in more than the usual quantities, the star feature was the parade in which the happy couple was given a ride in the Newlywed's one horse shay. By the way this conveyance is rapidly becoming one of the famous ones of Sumpter. Mr. and Mrs. Barnes are two of Sumpter's most popular young people and have a host of friends who join the American in congratulations, wishing them unlimited happiness and prosperity."

"Additional camps were started from time to time until nine camps in all were working. As soon as one area was worked, the camp was moved to another. In all, 28 camp areas were worked.

"May 3 the Baker Forest Protective Association started its 1911 control work by establishing a camp on Sutton Creek under the management of L.D.W. Shelton. Small mobile camps were sent out from this camp. May 26 a camp was established at Cold Springs, but due to lack of funds this camp was turned over to the Forest Service on May 28 and became Camp 7.

"Control work was continued by the Forest Service to June 30 when all of the camps were closed. The Association continued until July 10."

The Sumpter *Blue Mountain American* provided continuous and factual reporting of the project. Whether this was due to the prompting of Edmonston, who lived in the town, or to a sincere interest by the editor is hard to tell. It was probably a combination of factors. The Sumpter paper was reporting on all forestry matters during this period, whereas a careful check of the *Baker City Herald* did not reveal as much reporting on natural resources. Sumpter was in the middle of the outbreak and benefited most from the money spent for people and supplies. Many of the traveling dignitaries from the Forest Service, the Bureau of Entomology, and private lumber companies who visited the project stayed in Baker, but I could not find news items on those visits in the Baker newspaper.

The dependable Sumpter *Blue Mountain American* reported the conclusion of the project on June 29, 1911: **"BUG FIGHTERS THROUGH-Government Complete Season's War on Pine Beetle. Government Officials Well Pleased With Results Accomplished**—Tomorrow the government work for the season in Uncle Sam's war on the pine beetles, with which the pine forests of Eastern Oregon are infested, will have been completed. The officers in charge of the work are well pleased with the results accomplished. They report that more than 30,000 infected trees have been cut down and burned and that a larger scope of country than they anticipated when starting in the spring has been cut over. From 120 to 130 men have been employed in the work. The government men in charge of the work feel that much good will result in checking the spread of the little bug which they say is creating such havoc in the pine forests. The general impression seems to be that the beetles only attack the lodge pole or black pine. A timber of little commercial value. This impression is erroneous. The reports show that fully as many infected yellow pines were cut down as of the black pine. Some of these yellow pines were large trees, one being noted that was 84 inches in diameter."

"While the control work was in progress, my time was largely spent demonstrating and explaining the work to the various visiting owners and officials. Owners from as far away as Warren, Pennsylvania, visited the project. Among these were E.D. Wetmore, President of the Wallowa Timber Company of Warren, Pennsylvania, W.B. Sellers of the Shevlin Lumber Company, Secretary C.S. Chapman of the Oregon Forest Fire Association, State Forester Elliot of Oregon, District Forester Cecil of District 6, Dr. Hopkins from April 11 to 16, and many small owners, newspaper men, etc."

Hopkins at this time was strongly advocating his "principle of 75 percent reduction" of bark beetles by artificial control. The idea was that if 75 percent of the infested trees were treated, natural enemies and other factors would take care of the remaining 25 percent. He saw the Northeastern Oregon Project as a good opportunity to test his theory. As he put it in an unpublished report dated March 10, 1911, on file at the Forestry and Range Sciences Laboratory, La Grande, Oregon, "...It is evident that if this principle is kept in mind in the prosecution of the control operations specified in Amended Project 38, and the required 75% is disposed of, the factors operating to reduce the numbers of beetles in the trees and tops that are left will be sufficient to limit the force of the leaders in the subsequent attack on living timber to a point where the greatest number will perish in failures, and thus the desired reduction to the minimum will be effected."

> Disagreement with this principle developed over the next several years, especially from Forest Service personnel who thought 100 percent of the infested trees should be treated. Results from later bark beetle control projects indicated that the difference between treating 75 or 100 percent of an infestation was an academic issue. No matter how intensively control work was done, some infestation always escaped. Even with the most careful and thorough work, finding and treating much more than 75 percent was difficult. Consequently when 25 percent of the trees were deliberately left untreated, as Hopkin's advocated, some of the early projects were not too successful—unless beetle populations were declining naturally.[12]

"Several companies sent cruisers to be instructed in the work. These men worked in the camps as regular employees. Among them were E.J. Maberry and E.V. Gerber of the Wallowa Timber Company, William Long of the Inland Lumber Company of Spokane, J.B. Larsen of the F.A. Kribs Co. [sic] of Portland. Josef Brunner of Forest Insect Station 1 sent Lew Thomas, Hugo Kneiff and Al Wagner to assist in the work and receive training.

"The organization as carried out was composed of myself, in general charge for the Bureau of Entomology, Forest Supervisor Henry Ireland for the Forest Service, and Cruiser L.D.W. Shelton for the Association. The actual managers of the control work in the field were Expert W.D. Edmonston for the Bureau, Assistant Ranger Barnes for the Service, and Cruiser Shelton for the Association.

"Edmonston directed the work in the field, placing the camps and instructing the cruisers and foremen. Barnes and Shelton supplied the men, equipment, and provisions and moved the camps.

"Each camp was composed of one camp foreman, from one to three cruisers, three crew foremen, from 6 to 14 woodsmen, one cook and sometimes a cook's helper. The treating crews were composed of a crew foreman, two woodsmen and additional men to pile brush when that had to be done. The standard wage for a camp foreman was $3 per day and board, for a cruiser $2.75, a crew foreman $2.50, a woodsman $2.25, and a cook $75 per month. "The control work covered 109,610 acres, parts of 22 townships, along the eastern edge of the Whitman National Forest in Baker and Union counties. The Service covered 94,890 acres, about 35,000 acres being government land and 59,890 private. The Association covered 14,720 acres, all private.

"The Service treated 11,403 (2,914,130 board feet) of yellow pine and 15,170 (1,295,960 board feet) of lodgepole. The Association treated 2,265 yellow pine and 3,728 lodgepole, total board feet 610,310.

"The maximum number of trees treated per section was 571 yellow pine and 1,074 lodgepole; the average number treated was 62 yellow pine and 207 lodgepole.

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[12] Miller, J.M.; Keen, F.P. 1960. Biology and control of the western pine beetle: a summary of the first fifty years of research. Misc. Publ. 800. Washington, DC: U.S. Department of Agriculture (p. 316).

"The total cost of the spring control was $25,582.97 of which $2,000 was spent by the Association. To this, to get the total cost of the project, should be added the $1,681.55 spent for fall work.

"The control work demonstrated conclusively that in this infestation the mountain pine beetle was the insect responsible for the damage to all species of trees—yellow pine, lodgepole pine and white-bark pine. The western pine beetle was sometimes present, but practically always under conditions which indicated that it had attacked the tree after it had been attacked by the mountain pine beetle. The western pine beetle never was found in the young yellow pine, lodgepole pine nor white barked pine. In a few instances, the red turpentine beetle seemed to be the primary cause of the death of lodgepole.

"Apparently the infestation of the mountain pine beetle first became epidemic in the lodgepole pine and then spread upward into the white bark pine and downward into the yellow pine."

Some controversy developed on this point, which Burke fails to mention. While visiting the Northeastern Oregon Project in 1910, Hopkins first advocated his "host selection principle by which it is possible to control an insect attacking a valuable host tree without reference to those in a less valuable host, due to the adaptation of the insect to the host upon which it has fed for many years and the subsequent confinement of its attack to that host."

In simple terms, Hopkins claimed that the mountain pine beetle in inferior species of timber, such as lodgepole pine, will not migrate to any extent to another and more valuable host such as ponderosa pine (yellow pine) (*Pinus ponderosa* Dougl. ex Laws.), although the stands are adjacent and intermingled.[13]

How Hopkins was able to defend this principle in light of the intermingled mortality of both lodgepole pine and yellow pine by mountain pine beetle is a mystery. Burke probably neglected mention of the principle because he did not see it operating during that outbreak.

"In June orders were received to recommend 10 men for appointment as agents to the Bureau. A.G. Angell, C.C. Goodpasture, George Hofer, Hugo Kneiff, Ike Miller, J.D. Riggs, Phil Sergent, J.J. Sullivan, Lew Thomas and Al Wagner were recommended and appointed.

"When the project closed I was ordered to take charge of Forest Insect Field Station 5 at Yreka, California, and to take with me Angell, Sullivan and Riggs. Edmonston was placed in charge of Station 6 at Baker with Goodpasture.

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[13] See footnote 7 in Editor's Introduction, Snyder and others, p. 416-417.

"Hofer, Miller and Sergent, Kneiff, Thomas and Wagner were ordered to report to Josef Brunner in charge of Station 1 at Columbia Falls, Montana. Agent Turner was ordered to Station 7 at Spartenburg, South Carolina. He took with him Hamilton Farnum who had been taking notes on the infesting insects during the control work. Farnum was later appointed an agent and worked for the Bureau for several months at Spartenburg and at Washington.

"During July and August, Edmonston and his crew made a survey of the control area to determine the amount of new infestation that was developing. F.C. Craighead, now the chief of the Division of Forest Insect Investigations [in 1946], was a student assistant for the summer and spent some of his time with this survey. This was his first experience in the forests of the Pacific Coast.[14]

A report of this survey unfortunately has not been located, nor has any final report of the 1911 control operations been found. It seems inconceivable that such reports were not prepared; however, the reliable Sumpter *Blue Mountain American* came through again with two front-page articles, the first on July 13, 1911: "**Looking for Bugs**—W.D. Edmonston, a former resident of this city, is now stationed at Baker in charge of the office of the entomology bureau in place of Mr. Burke, who has been transferred to California. Mr. Edmonston was here the first of the week in company with Phillip Sargent [sic] who has charge of the field cruising of the territory recently worked over in this section by the crews of the government pest exterminators. The object of this is to ascertain a definite idea of the result of the work done and decide whether it will be expedient to establish extermination stations again this fall. The inspection will include the territory embraced in the Medical Springs and East Eagle country as well as this section. Mr. Sargent is being assisted in this work by Clarence Goodpasture, G. Hoffer, I.C. Miller, and F.C. Craighead."

Blue Mountain American, July 27, 1911: "**Continue Bug War**—F.C. Craighead, agent of the bureau of entomology, Washington, D.C., has been conferring with the head of the local offices in charge of the work of exterminating the pine beetle. It is probable that the work will be continued next year and the infected area in the Wallowa forest cleaned up in a manner similar to the work done in the Whitman this year. Reconnaissance work will be carried on this summer. Since last October the government has disbursed $40,000 in fighting the pine beetle. While the work completed in the Whitman forest has been very thorough the officials say the area cut over is so small as compared with the total infected territory that but little good will be accomplished unless it is followed up from year to year."

Burke also provided personal sketches of people associated with the control work. He organized these cooperators by their job affiliation, such as private owner or Forest Service, etc. These descriptions follow.

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[14] Craighead became Chief in 1923 when Hopkins relinquished his administrative duties to return to research. Craighead eventually challenged some of Hopkins' bark beetle control theories.

"Some of the Cooperators
The Private Owners
W.C. Calder probably was the main personnel reason for the Northeastern Oregon Control Project. As the agent at Baker for the Wallowa Timber Company, Calder became alarmed at the dying of the timber and did something about it.

"Calder was about 40 years of age in 1910, a native of the middle west, very good looking and always well dressed. His reputation was a little shady, he having been a dealer in mining stock, insurance and particularly in investing money for more or less rich widows wherein the widow usually lost the money. At the time of the project, Calder was married to the widow of Mason of Holly, Mason and Marks, the leading hardware dealers in Portland."

> Mrs. Calder was also in Baker in 1910. "Mr. and Mrs. Calder were Sumpter visitors between trains Wednesday from Baker City." Sumpter *Blue Mountain American*, July 9, 1910.

"As agent for the timber company, it was Calder's duty to buy timber land and to look after the timber, fire protection, etc. It was the same old cutthroat game of buying your timber so you could surround an area and prevent the other fellow from getting in or having a way of getting his timber out without paying you for the privilege."

> Fraudulent land claims were not unusual during this period. Large timber companies hired local residents and workmen to file on land with the understanding they were to be transferred afterward to the timber company. For instance, some local timber companies and some from western Oregon were charged with conspiracy to defraud the Federal government of its lands near Sumpter in 1904. As the *Baker City Herald* for October 3, 1910, put it, "...J.B. Stoddard and Seymour H. Bell, prominent Portland timber operators together with the Hewitt Lumber Company of Tacoma were Saturday charged in the United States Court with conspiracy, and proceedings were begun for the recovery of Baker County timber claims, alleged to be only a portion of the fruits of the operation of their plans, according to the Oregonian." Henry Hewitt, who was one of the project cooperators, was named in the charges because he allegedly purchased the Stoddard mill near Sumpter with knowledge of past fraudulent land claims and then increased his efforts to obtain additional timberland illegally.
>
> According to the *Blue Mountain American* for October 5, 1911, David Eccles was also indicted by the Federal government for "...conspiracy to defraud the government of extensive tracts of timber lands in eastern Oregon...".

"At the time of the project the only way to get timber out was by railroad and the only railroad into the timber near Baker was the Sumpter Valley. This road was supposed to be a common carrier but it was owned by the Mormon family of Eccles of Utah. This family owned timber lands in the Baker section, at Hood River and other points so had considerable influence. Cars were often short when other owners desired to get out their timber. This caused considerable friction between the Mormons and other owners of timber which made it rather difficult to form a cooperative project among the various timber owners. Calder, in particular, was in bad because he had said a great deal about the Sumpter Valley and the Mormons."

> The Sumpter Valley Railroad was also an important transportation link with the area of the beetle control project in that preautomobile era. This is evident from the monthly travel report for August 1912, submitted by J.J. Sullivan who was a woodsman on the 1910-11 project and was later hired by the Bureau of Entomology. His itinerary to check the project area follows: "Aug. 5 Baker, Oreg. to Salisbury, Oreg. via S.V.R.R. 12 miles to examine timber for insect infestation and depredation. Aug. 15 Salisbury, Oreg. to Sumpter, Oreg. via S.V.R.R. and return 36 miles under orders from W. D. Edmonston expert in charge. Aug. 17 by wagon from Salisbury, Oreg. to Stices Gulch, 8 miles to examine timber for infestation. Aug. 30 Stices to Salisbury by wagon 8 miles, Aug. 31 Salisbury to Baker via S.V.R.R. 12 miles."[15]

"Calder, however, was all energy and enthusiasm and with the aid of Turner did get the various owners together. The Baker Forest Protective Association was formed and 3 or 4 thousand dollars was collected. Calder also kept after the Forest Service and the Bureau until they got behind the project.

"E.L. Gerber, the Association manager for the 1910 fall control work, was about 25. He came from a circus family and was born on the road. Gerber was a timber land looker for Calder and had some cruising experience. As manager for the control work, he hired the personnel and saw that the camp was supplied and outfitted. He also did some insect spotting of infested trees. One of the men hired was J.J. Sullivan who became an entomological ranger for the Bureau.

"E.J. Maberry, the cruiser-foreman for the 1910 Association control work, was also about 25 and a native of southern Idaho where his father was a horse raiser. Maberry seemed to know his work well having had cruising experience with the Warren Timber Interests in New Mexico as well as in Oregon. While Gerber was strictly a Calder man, Maberry had been trained by Shelton and was more of a Shelton man. In a way it looked as though the company was playing safe and had Shelton keeping an eye on Calder. Maberry worked under Shelton in the 1911 control work carried on by the Association.

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[15] Sullivan, J.J. Travel report dated August 1912. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

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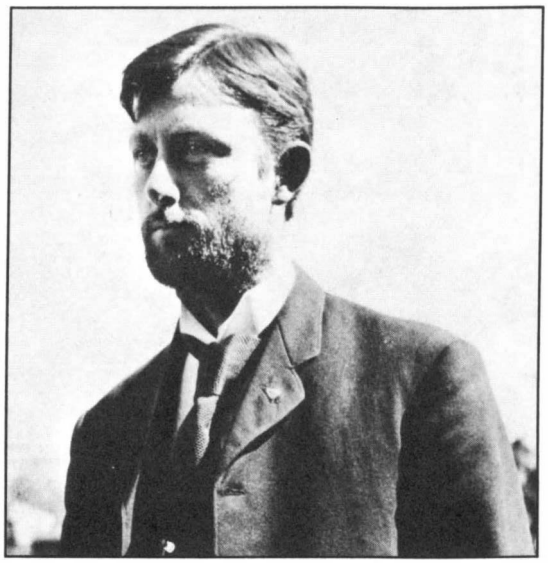


Harry E. Burke at Palo Alto, California, September 19, 1906, after a field season in the Yosemite country.

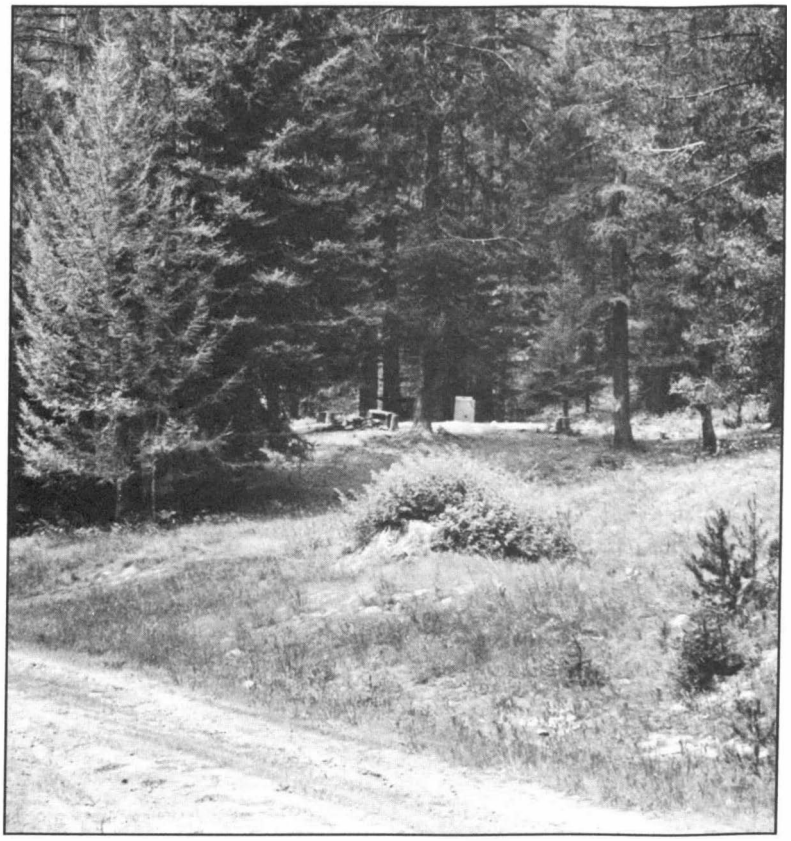
First office of the Northeastern Oregon Bark Beetle Control Project and field station in Baker, Oregon, September 1911. W.B. Turner, special agent in charge of cooperation with private owners (left) and Harry E. Burke, agent and expert in general charge of the project.

Control crew with agent and expert Harry E. Burke (second from left) at a training camp west of Baker, 1911 (probably April). From left to right, Stockburger, J.J. Sullivan, Ike Miller, E.J. Maberry, and Henkel.

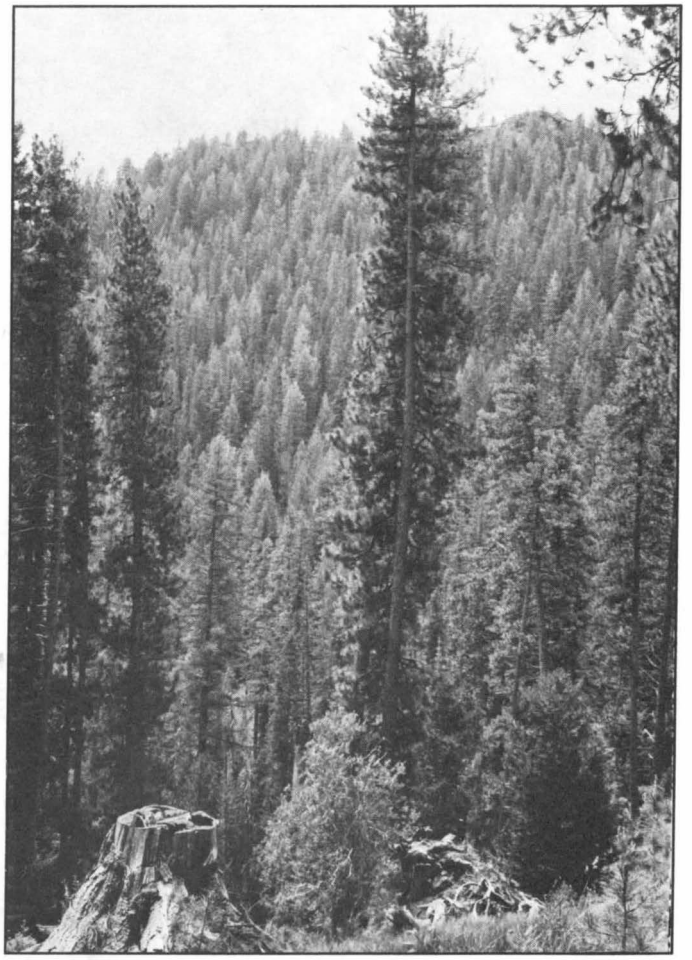
captions reversed

Control crew with A.D. Hopkins (center) examining ponderosa pine infested with mountain pine beetle in the Miner Creek area, Whitman National Forest, near Sumpter, Oregon, April 16, 1911.

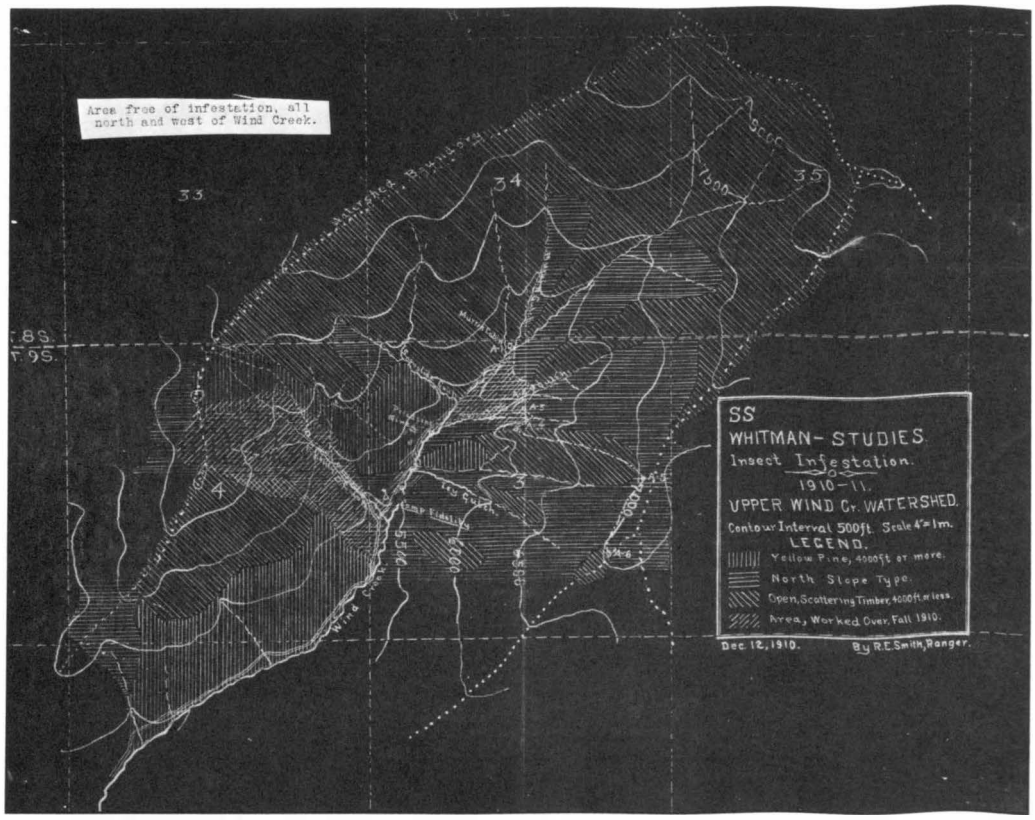
Control camp of the Baker Forest Protective Association, fall 1910.



Site of the Forest Service control camp at Wind Creek, fall 1910. Photographed by editor, summer 1986.



Looking west on Wind Creek near the 1910 camp site. Most of the lodgepole pine and ponderosa pine in the drainage were killed by the mountain pine beetle and treated in 1910. The forest has converted to mostly Douglas-fir and grand fir, which in 1986 was being defoliated by the western spruce budworm.



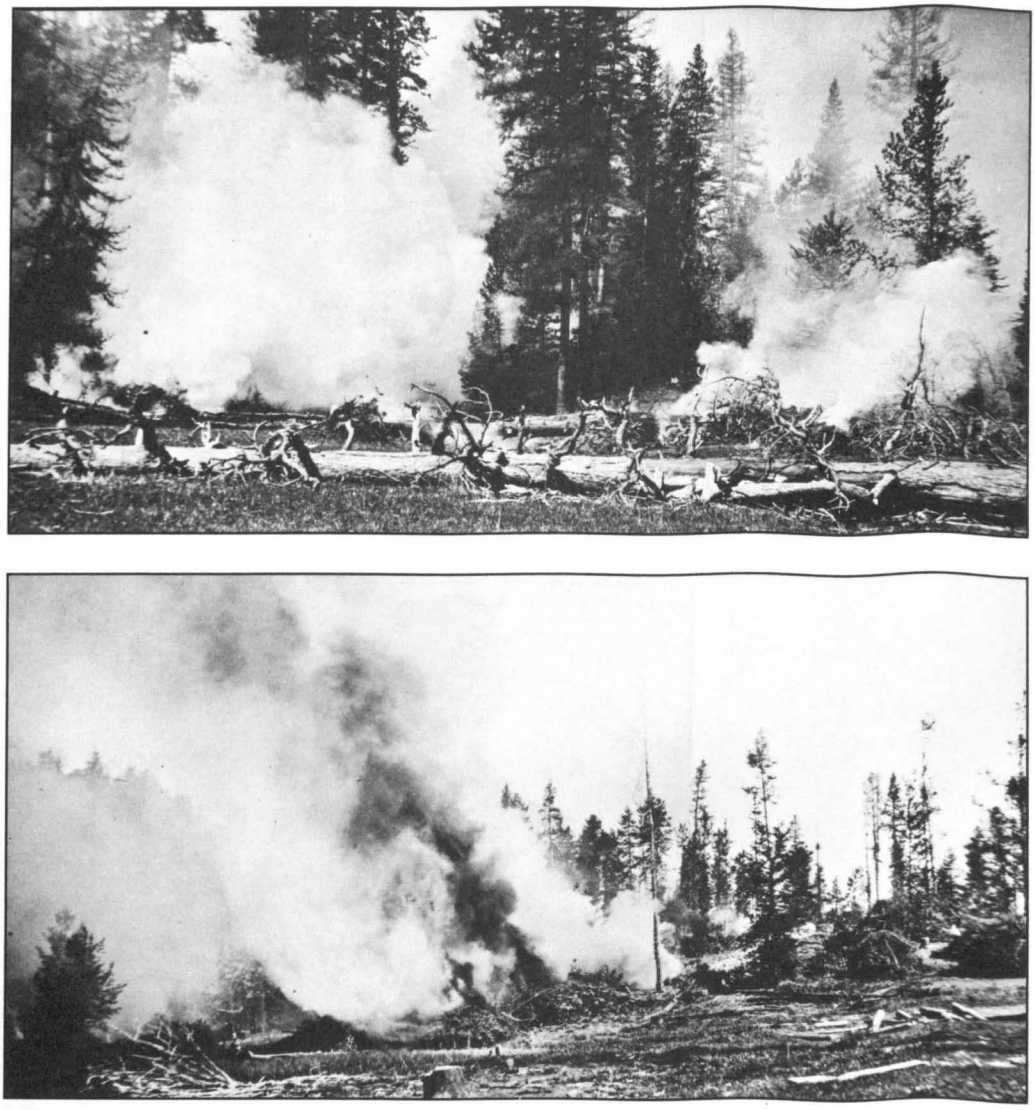
Map of the upper Wind Creek drainage prepared by Forest Service Ranger R.E. Smith that shows the location of Camp Fidelity and the extent of control work completed in fall 1910.

Harry E. Burke examining lodgepole pine infested with mountain pine beetle near the Highland Mine, March 1911.

Mountain pine beetle control camp, Badger Creek, Ochoco National Forest, 1913.

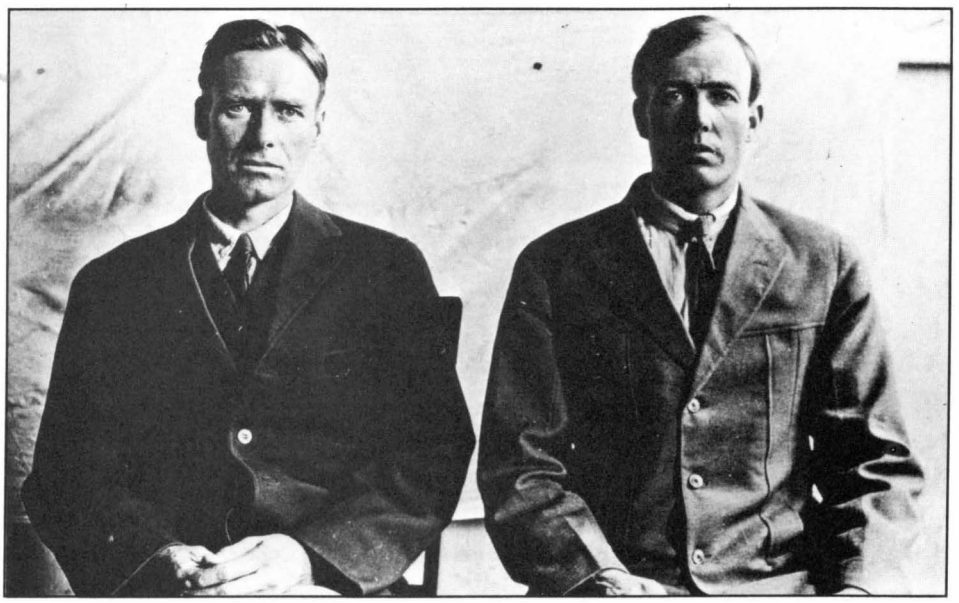
Lodgepole pine logs infested with mountain pine beetle (top). After slashings were piled on top, the piles were burned (bottom). Ochoco National Forest, 1913.

Two crew members ready to fell lodgepole pine infested with mountain pine beetle, Ochoco National Forest, 1913.

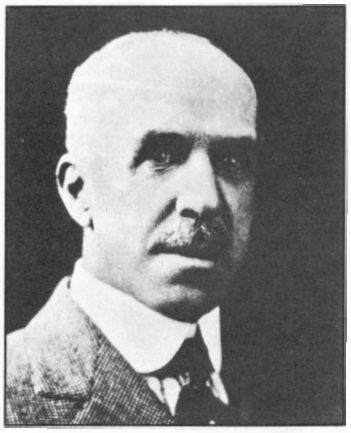


Burning piles of infested logs and slash, Ochoco National Forest, 1913.

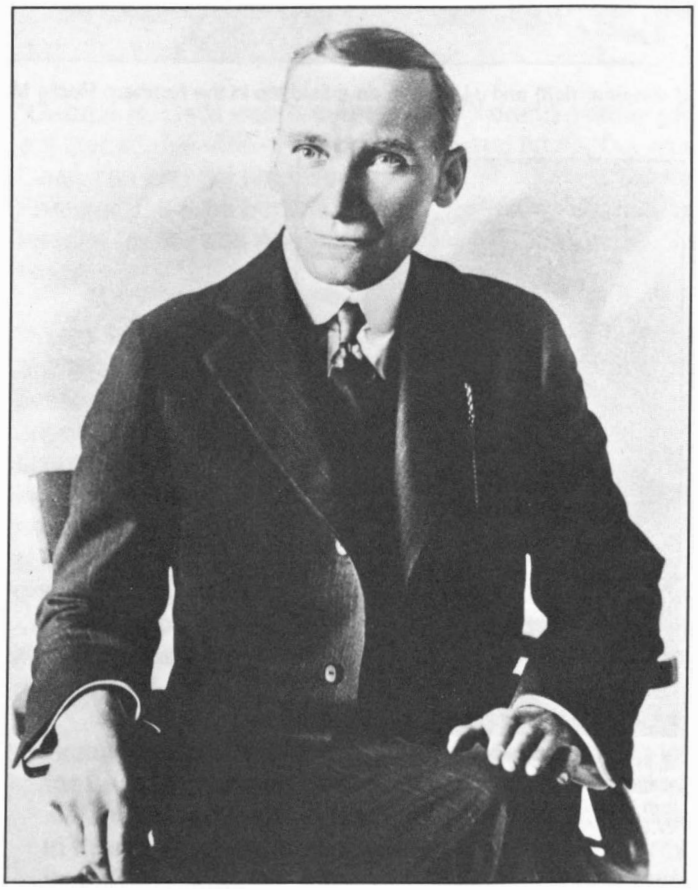
On the summit of Elkhorn Mountain are, from left, F.C. Craighead, an unidentified agent, and P.D. Sergent. They are recruising the control area. July 1911. (HOFER)



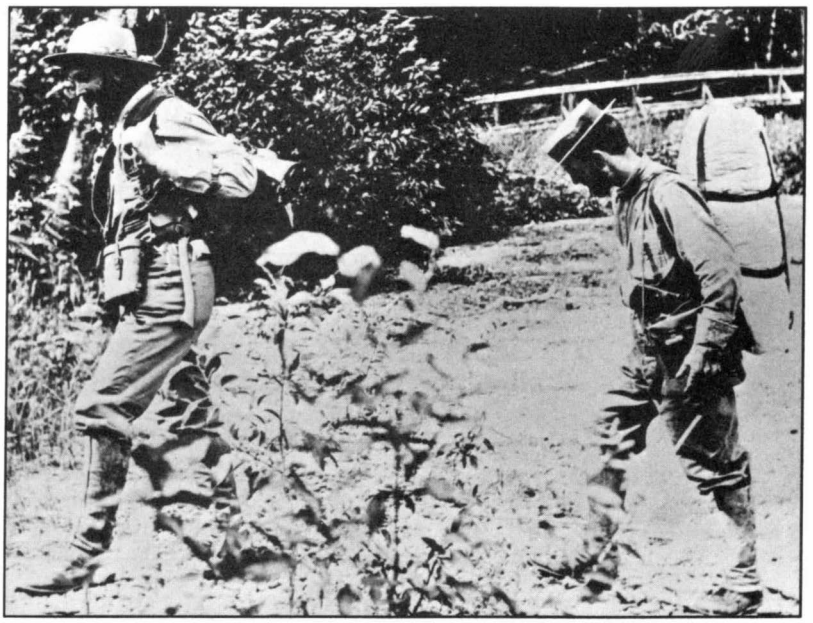
J.D. Riggs (left) and J.J. Sullivan, woodsmen hired by the Bureau of Entomology as entomological rangers after the 1910-11 control project.



W.D. Edmonston, at Colorado Springs in 1917, when he was in charge of the Southern Rocky Mountain Station.



G.G. Hofer, woodsman during the 1910-11 project and later hired as an entomological ranger by Edmonston. From 1913 until his retire-ment, he worked under Edmonston at the South-ern Rocky Mountain Station.



J. Brunner (left) and J.L. Webb on a field trip in the Northern Rocky Mountain region, August 1910.

B.T. Harvey in 1913 when he was stationed at the Southern Rocky Mountain Station in Colorado Springs with W.D. Edmonston.

"L.D.W. Shelton, manager of the 1911 Association control work, was about 65 at the time of the project. He was an experienced surveyor and timber cruiser and had made the original surveys for parts of western Washington. The town of Shelton on Puget Sound was named for him. Shelton was a good field manager but did not think much of Calder, the Bureau, or the Forest Service so ran the control more or less on his own.

"Mr. E.D. Wetmore, president of the Wallowa Timber Company, was about 50 and a man of wide business interests. He was a good backer of the project and reported to Washington that he was well satisfied with the way the control was conducted.

"The Forest Service"

"At the time the project started in 1910, C. S. Chapman was the District Forester of District 6 of which the Whitman and the Wallowa Forests were a part. Chapman was a trained forester who had considerable training and experience in various parts of the United States. He was a good cooperator and did all that he could to make the work a success. Later he became the secretary of the Oregon Forest Fire Association and then worked for the Weyerhaeuser Timber Company in Washington State until his death a few years ago.

"George H. Cecil was the Associate District Forester of District 6 at the time the project started. He visited the project several times, but was not as good a cooperator as Chapman and did not favor the control work. Cecil followed Chapman as District Forester. Later he became Supervisor of the Angeles Forest in District 5 and then forester for the Los Angeles Chamber of Commerce which position I believe he still holds.

"Henry Ireland was supervisor of the Whitman National Forest with headquarters in Sumpter. Ireland was about 50 years of age and one of the old Interior Department political appointees. He was a carpenter by trade in west-central Oregon and when appointed fought forest fires by riding up to the fire on a horse with his rifle on his shoulder and watching the timber burn. This was the usual method of forest firefighting in those days. Soon after the start of the century, however, methods improved and forestry became a profession. Ireland made good and soon rose to the position of supervisor of the Whitman National Forest which contained several areas of very good yellow pine accessible to a good market. Ireland was a good cooperator, but did use the bark beetle infestation to increase his timber sales. The more receipts the more important the position. He remained the supervisor of the Whitman until his death about 1918."

Actually Henry Ireland was 40 years old according to the census of 1910 for Sumpter, Oregon. This personal item appeared in the *Blue Mountain American* for July 2, 1910: "A new member of the Forest Service is reported in the family of Supervisor Henry Ireland, having arrived Sunday evening last. The new ranger has taken charge of the household and all are doing splendidly."

The *Blue Mountain American* for June 1, 1916, carried Henry Ireland's death notice. He died of a heart attack at 3 a.m. on May 31 at the age of 46. The paper went on to say that he had been in charge of the Whitman Forest for 9 years and was a popular government official. He was also a local school board official. A service conducted at the Methodist Church "was crowded to the limit by friends of the deceased."

The *Blue Mountain American* on April 26, 1917, reported that Forest Supervisor R.M. Evans announced that Baldy Mountain northwest of Sumpter will hereafter be called Mount Ireland in honor of the late Henry Ireland. As the newspaper put it, "Mt. Ireland is one of the majestic peaks of the Whitman Forest, reaching an altitude of 8330 feet. No more fitting monument could be selected in memory of Mr. Ireland, and in time we will become accustomed to the change and Mt. Ireland will become the commonly used name."

"The forest assistant on the Whitman was M.L. Merritt. Merritt was a forestry graduate of the Iowa State College and had been in the Philippine Forestry Service. He was much interested in the insect work, but became seriously ill and was in the hospital most of the time during the project. Merritt afterward transferred to Alaska and later became assistant regional forester in charge of operation for Region 6 [Pacific Northwest Region]."

Merritt was in the hospital just before work started in the spring of 1911 according to the Sumpter *Blue Mountain American* for April 13, 1911: "...The many friends of M.L. Merritt, of the forest service, who has been at the Sumpter hospital very low with pneumonia, will be pleased to learn that he is improving and expects to be able to get about at his duties in the near future."

As it turned out, Merritt had typhoid and his father was summoned from Iowa because it was feared the younger Merritt would not live. On May 11, he was moved to Portland to convalesce. He did not return to duty in Sumpter until early August (*Blue Mountain American*, Sumpter, Oregon, May 4 and 11, 1911, and August 10, 1911).

"Three of the rangers on the Whitman were R.E. (Ken) Smith, Ephriam Barnes and H.B. Rankin. Smith was a Kansas boy who had joined the Service without any previous forestry experience. He was a serious student, however, and had taken several short courses in forestry. He made the original insect survey on the Whitman and had charge of the 1910 control work for the Service. He did not like control work so was transferred to other work in 1911. Later he transferred to Alaska and was there for a number of years.

"Barnes was a young middle westerner, also without technical forestry training. He was made manager of the 1911 control work for the Service, but in the middle of it was promoted to be Supervisor of the Ochoco Forest with headquarters at Prineville in central Oregon.[16] Afterwards he was made Supervisor of the Minam Forest with headquarters at Baker. Later, about 1918, he left the Service.

"Rankin was an older man who had been a railroad station agent before joining the Service. He saw something of the infestation and the control work but was transferred to western Oregon where he became Supervisor of the Siuslaw Forest."

Rankin was also younger than Burke remembers; according to the 1910 census of Sumpter, he was 38 years old. An item in the Sumpter *Blue Mountain American* on February 11, 1911, reports; "...H.B. Rankin of the Forest Service with headquarters at Pilot Rock spent several days in the city the fore part of the week on forestry business."

Rankin saw quite a bit of the infestation, because he was in charge of control camps near Haines and then Sumpter until the conclusion of the work (*Blue Mountain American*, June 15, 1911).

"W.T. Andrews, logging engineer for the District, spent some time in the infested areas. He did not think much of control work and believed that the best plan was to sell the timber before the insects could kill it."

This attitude may have seemed reactionary at the time but has since proved to be sound thinking; it is the current method of managing a mountain pine beetle outbreak in the Deschutes National Forest. This approach was also advocated by F.C. Craighead and other Bureau of Entomology scientists in 1930. "Observations over the past 30 years indicate that lodgepole pine forests throughout this region are inevitably destroyed when they reach a certain stage of maturity. In a way this is nature's method of harvesting and preparing for a new stand and would indicate that this tree species should be handled on a rotation short enough to avoid beetle epidemics."[17]

In the 1960's and early 1970's, silvicultural methods for preventing severe outbreaks were studied and tested on parts of the 1910-11 outbreak areas by C. Sartwell and R. Dolph, entomologists in the Forest Service. They found that by thinning the dense stands that had replaced those killed by beetles and by subsequent logging, tree vigor was increased enough to drastically reduce beetle attacks in the thinned stands, as compared to unthinned stands nearby.[18] This reduced level of infestation in the thinned stands continued into the 1970's.

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[16] Burke erred here. Barnes was actually Deputy Forest Supervisor of the Ochoco National Forest and was apparently transferred to take charge of some bark beetle control work that the Forest was doing independently from the Bureau of Entomology (see footnote 26).

[17] See footnote 1 in Editor's Introduction.

[18] Sartwell, Charles; Stevens, Robert E. 1975. Mountain pine beetle in ponderosa pine. Journal of Forestry. 73: 136-140.

"P.D. Sergent was engaged by Edmonston as a worker on several control projects in Colorado before coming to the Northeastern Oregon Project in April 1911. He had previously been a deputy United States Marshal in Oklahoma.[19] He was a special cruiser assistant to Edmonston until July 11 when he was appointed as Agent. He moved with Edmonston to the station at Klamath Falls, Oregon, in the fall of 1911 and was later assigned to the station at Ashland, where he remained until November 15, 1924. He resigned to take a job as foreman for the McCloud River Lumber Company on bark beetle control projects, but after a year or so with the company joined the Water Department of the City of Ashland.

"Angell was employed by the Bureau for one year only. He was a cruiser with the Forest Service in the 1911 spring control work of the Northeastern Oregon Project. Appointed as an Agent July 1, 1911, he spent most of the next year attached to the Yreka station. He was the Bureau representative, on the Moffatt Creek Control Project during the winter and spring of 1912 and during May and June was detailed to Baker to make a recruise of the northeastern Oregon control areas. He afterwards became a Ranger on the Whitman National Forest and made a name for himself by organizing a cattlemen's cooperative association that really cooperated. Later he was attached to the Supervisor's headquarters of the Whitman at Baker and then to the North Pacific Region headquarters at Portland where he had charge of the CCC work for the Forest Service. I believe that he died in Portland in 1943.

"J.D. Riggs was camp foreman for the Forest Service on the Northeastern Oregon project and with the Forest Insect Station 5 at Yreka, Placerville and Ashland from July 1, 1911, until about August 1, 1916, when he resigned to go into mining.

"J.J. Sullivan was a woodsman for the Baker Forest Protective Association in the 1910 fall control work for the Northeastern Oregon Project, and a cruiser in the 1911 spring control work. He served as Agent and later as Entomological Ranger with Forest Insect Station 5 at Yreka and Placerville from July 1, 1911, to September 1915, and was then transferred to the Northern Rocky Mountain Station. Sullivan left the Bureau in June 1916 to go into lumbering.

"W.D. Edmonston was another of the men selected by Dr. Hopkins who had a large share in the first developments of forest entomology in the west. He was born in Edinburgh, Scotland, March 28, 1870; the son of the Scotch artist, Samuel Edmonston, and Jane Douglas Edmonston. A graduate of the School of Fine Arts of the University of Edinburgh, he was an artist of considerable ability and exhibited some of his water colors at the Royal Scottish Academy and at the Royal Academy of England.

"It is also interesting to note that Edmonston was interested in insects as a youth. While exhibiting some moths and butterflies at one of the Empire Exhibitions held in Edinburgh, Edmonston met Dr. C.V. Riley, chief of the Division of Entomology, U.S. Department of Agriculture. Dr. Riley was in Edinburgh with an exhibit of American insects. Edmonston helped Dr. Riley arrange his collection and had many interesting talks with him."

[19] The photograph of Sergent on page 28 with a rifle over his shoulder looks like he was still chasing desperados rather than bugs.

> Dr. Riley became one of the most eminent entomologists in the U.S. Department of Agriculture and the United States. He was instrumental in establishing entomology as an essential discipline in support of agriculture. He was also a strong advocate of controlling insects by direct means, including chemicals if necessary. He was the first State entomologist in Missouri and the USDA's Chief Entomologist from 1881 to 1894.[20]

"The Edmonstons came to the United States in 1890 and settled at Brunston near Larkspur, Colorado; Edmonston sharing a studio with his father. The depression of 1893 coming on soon afterward destroyed the sale of art works and Edmonston turned to scene painting in Denver theaters, mining and storekeeping before finally getting into forestry and forest entomology. If there had been no depression of 1893, there probably would have been no forest entomologist Edmonston.

"Edmonston probably entered the federal service sometime in 1901 as a ranger on what is now the Pike National Forest. At that time it was under the Interior Department. He rose to the position of ranger in charge of the Plum Creek reserve which became part of the Pike Forest after the reserves were transferred to the Department of Agriculture in 1905. Edmonston was transferred to the Department of Agriculture with the forest and became head ranger on the Pikes Peak Forest Reserve.

"Edmonston's introduction to forest insect work was made October 5-13, 1905, when he made several trips in the vicinity of Colorado Springs and Palmer Lake, Colorado, with Dr. A.D. Hopkins to study infestations of the Black Hills beetle. From then on Edmonston spent considerable of his time in cruising bark beetle infestations and in conducting control operations in the various forests of Colorado. Sometime in 1907 or 1908 he was assigned to the Bureau from the Forest Service to work under the direction of Dr. Hopkins on the practical application of insect control work in the national forests. Except for some time spent at headquarters in Washington in February and March 1909 the time was spent in the national forests of Colorado, southern Wyoming and eastern Utah until his detail to the Northeastern Oregon Project in May 1910.

"During the work in Colorado, Edmonston experimented with various methods of treating trees infested with the Black Hills beetle. At least one infestation was controlled by felling the infested trees, sawing them into lumber and burning the slabs. Various cost methods by contract treating were tried. In fact, practically all of the methods of spotting and treating were tried except sun curing and oil treating.

"After the moving of Forest Insect Station 6 from Baker to Klamath Falls in September 1911, Edmonston and his crew of Hofer and Sergent spent considerable time inspecting timber west of Klamath Falls and in trying to interest the various timber owners in bark beetle control. As a result of this work, the Parker's Station Project was carried on in Klamath County from April 1 to May 17, 1912. The infestation was western pine beetle in yellow pine and mountain pine beetle and *Melanophila* sp. in yellow pine and sugar pine.

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[20] ESA Newsletter. 1986. 9(2):5. Also see footnote 3 in Editor's Introduction.

"Some time during the fall of 1912 Edmonston moved from Klamath Falls to Ashland. February 26 to March 8, 1913, was spent in Washington, D.C. attending the first conference of forest entomologists. At that time it was decided to carry on Forest Insect Investigations in the field with an eastern field station at Falls Church, Virginia, with S.A. Rohwer in charge: Northern Rocky Mountain at Missoula with Josef Brunner; Southern Rocky Mountain in New Mexico or Colorado with W. E. Edmonston; and Pacific Slope at Placerville with H. E. Burke.

"Edmonston spent most of the summer of 1913 in the vicinity of Ashland studying various forest insects. One trip was made to Placerville in June to consult with Burke about transferring the station. October 13 he left for Albuquerque, New Mexico. Since no quarters could be obtained in the government building at Albuquerque he continued on to Colorado Springs and established the Southern Rocky Mountain station with Agent George Hofer and Entomological Assistant B.T. Harvey.

> Edmonston rejoined Burke when Edmonston transferred to Palo Alto in 1928, where he remained until his retirement in 1932. During this period, he became a scientific illustrator and used his artistic talents to draw many fine insect pictures for various publications, including Burke's text book "Forest Entomology."[21]

"In 1917, during the first World War, Edmonston at the age of 47 applied for service in the Engineers but did not pass the physical examination so was not accepted.

"In 1896 Edmonston married Laura Kinner of Douglas County, Colorado. By her he had two children, one now Mrs. Howard Cox of Denver and Samuel who died in 1926. Edmonston was divorced in 1914 and married Mrs. Cora Schneckenberger of Tucson in January 1925. After his retirement in 1932, Edmonston lived in Tucson where he died November 7, 1936. Mrs. Edmonston survived him.

"Edmonston was a cultured gentleman and a delightful companion in the field or office. He also was a keen observer and a philosopher. In his younger days he was an aggressive director of control work and got much done against considerable opposition. For some reason the Forest Service officials in the field were against insect control work and it was a constant struggle to keep a project going even after the plans had been agreed upon in Washington.

"Edmonston was not a warm admirer of the Pinchot type of conservationist. He had lived among the old ranchers, stock raisers and miners of the old wide open range days and sympathized with them. He saw how ruthless the Pinchot men could be if a man ventured to disagree with the statements they made even if they seemed very wild which many have since proven to have been. In fact, Edmonston himself would have been let out on what the writer considers to have been false charges if Dr. Hopkins had not had him transferred to the Bureau of Entomology in 1910."

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[21] See footnote 9 in Editor's Introduction.

Gifford Pinchot was Chief Forester of the U.S. Forest Service during its first and formative years of 1905-10. He was fired in 1910 by President Taft for insubordination brought about by a bitter controversy with Secretary of Interior Richard Ballinger over coal leases on Federal lands in Alaska. He was a close friend and advisor of Theodore Roosevelt and a leader in the forest-conservation movement. His strong-willed approach to National Forest administration won him both friends and enemies, as Burke implies. For instance, George Walker, of Cheyenne, Wyoming, Secretary of the National Wool Growers Association, said, "I regard Gifford Pinchot as a Scholar and a gentleman, but an enthusiast with a hobby, who is attempting to force his policy upon the people regardless of consequences."[22]

"William Burke Turner, 186?-1924, was in charge of securing the cooperation of the private owners of timber in the Northeastern Oregon control project. Turner arrived at Baker August 3, 1910, and spent the field season of 1910 and April to July 1911 in the field on the project. January to April 1911 were spent at bureau headquarters in Washington assisting Dr. Hopkins with plans and working for an emergency appropriation for forest insect control work.

"Besides working with the private owners at Baker, Turner made a trip to Portland and Seattle in November 1910 to confer with several large owners of timber. Among these was Henry Hewitt, a tough old lumberman of bygone days. Turner was told by several that Hewitt would throw him out of the office if he asked for cooperation but they got along fine and Hewitt agreed to cooperate in control work."

"In December 1910 a trip was made to Spokane to attend the meetings of the Western Forestry and Conservation Association. Turner made a talk on the pine beetle depredations which was received with a great deal of interest. The writer believes that this was the first time the subject was ever presented to that Association.[23] J.F. Kimball of Klamath Falls was present at this meeting and first heard of the pine killing beetles.[24] This caused him to check over the timber in his care on his return home and to apply for government assistance when he found some infestation. This application caused Edmonston and his staff to move to Klamath Falls in September 1911 and start the work that finally resulted in large scale insect control operations in southern Oregon."

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[22] Baker City Herald [OR]. October 12, 1910. Also see footnote 7, Clary.

[23] Wohlenberg, E.T.F. 1946. Journal of Forestry. August: 505-506. This was the inaugural meeting of this organization, which was formulated by E.T. Allen, former Regional Forester of what is now the Pacific Northwest Region of the Forest Service. Thus pest problems became an early focus of this important conservation organization, as they are to this day. A standing pest committee convenes during the annual meeting.

[24] J.F. Kimball became one of the most important early cooperators of the Bureau of Entomology and proponents of bark beetle control projects. For further information on this pioneer Klamath County timberman, see "Pages from the Past," an article about him in *The Herald and News*, Klamath Falls, Oregon, February 4, 1979. For information on the Klamath Forest Protection Association, see "KEPA Anniversary," a feature article in *The Herald and News* for Sunday December 14, 1958. Kimball was an agitator for controlling both fires and insects, but letters in the editor's files indicate he was also a thorn in the side of the Bureau of Entomology personnel.

The next cooperative bark beetle control project in eastern Oregon was called the Parker Station Project. It involved several large private holdings including Weyerhaeuser interests, which Kimball was representing at the time. Edmonston got this project started on a small scale in spring 1912, with mixed results. Pine bark beetles continued to cause losses around Klamath Falls, which eventually led to a large cooperative effort called the Southern Oregon-Northern California Project. This project was conducted between 1921 and 1924.[25]

"On his trip back to Baker from Washington in March 1911, Turner visited Boston, Minneapolis, Two Harbors and Duluth to contact timber owners. In June 1911, Turner made a trip into central Oregon to look over bark beetle infestations reported by private owners. The heavily infested areas on the Paulina National Forest were found and reported."

This infestation was mostly on private land and was referred to as the "Bend Project" in correspondence on file at the Forestry and Range Sciences Laboratory, La Grande, Oregon. But no actual control project was conducted. Edmonston could not get the various private forest owners to cooperate in a timely manner so he returned to Parker Station.[26]

"Turner's work on the Northeastern Oregon project was very successful. He was enthusiastic about the work and knew how to get along with the old type individualistic timber owner and lumberman as well as with the politician. He assisted materially in getting the emergency appropriation for the control work and in getting the private owners to form the Baker Forest Protective Association on September 18, 1910. This Association probably was the first lumbermen's organization to contribute money to forest insect control work. Much more cooperation with the private owners probably would have been had if the work had been continued as started by Turner.

"At the close of the Project in July 1911 Turner was ordered to Washington and assigned to Forest Insect Station 7 at Spartenburg, South Carolina. The remainder of the 1911 field season was spent with private owners who were losing timber by the depredations of the southern pine beetle and in working up public interest in forest insect control. Apparently no one was placed in charge of the work at Spartenburg and conditions became very unpleasant. In the upheaval that followed, Turner left Forest Insect Investigations and joined the staff of Gypsy and Browntail Moth Investigations as a special agent. This was about February 1, 1912.

"April 14, 1914, Turner took the Civil Service examination for Scientific Assistant and was appointed to that position with Cereal & Forage Insect Investigations January 1, 1915. Several years were spent at the Hagerstown, Maryland, laboratory. About August 1, 1921, Turner transferred to the Sacramento, California, laboratory where he had charge of the insectary. Here he remained until his death June 11, 1924.

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[25] Miller, J.M.; Keen, F.P. 1960. Biology and control of the western pine beetle: a summary of the first fifty years of research. Misc. Publ. 800. Washington, DC: U.S. Department of Agriculture (p. 240).

[26] See footnote 1.

"Turner was born in Indiana shortly after the close of the Civil War. At an early age he was apprenticed to a druggist and learned that trade. In the early 1880's the family moved to Yam Hill County, Oregon. Turner married there, inherited $10,000 and farmed for a number of years. At the end of that time he had enjoyed life thoroughly but had no farm or money. He then was a pharmacist in Portland for a time.

"In the early nineties one of the U.S. Senators for Oregon, who was a friend of Turner's father, had Turner appointed a clerk on the Senate rolls. For the next ten or more years Turner remained with the Senate. Just before he was to have received permanent status his Senator was defeated and Turner was dropped. Being a friend of Dr. Howard, the Chief,[27] and Mr. Clifton, the chief clerk of the Bureau, and an Oregonian, and the Northeastern Oregon Project in progress, he was appointed an agent and sent to Baker about August 1, 1910."

> The Sumpter *Blue Mountain American* for September 3, 1910, reports that, "...Mr. Turner a member of the government was in the city yesterday in consultation with forest Supervisor Ireland. For the present Mr. Turner's headquarters are at Baker City."

"Josef Brunner was a native of the German state of Bavaria. After graduating from one of the German forest acadamies and working for the Bavarian forest service for a few years, Brunner became interested in big game hunting and came to the United States and Montana about 1900. He hunted and wrote hunting stories for such magazines as 'Outing.' These stories attracted attention and he was requested to write a nature book for the Boy Scouts of America. 'Tracks and Tracking' was published by the Outing Publishing Company in 1909 and has been used for a number of years as a reference book for the Boy Scouts.

"While hunting in the Snowy Mountains of central Montana, Brunner in 1908 noticed quantities of dying pine and studied the same. Finding insects under the bark he started corresponding with Dr. Hopkins and was invited to join the staff of Forest Insect Investigations and to conduct a control project against the mountain pine beetle which was the destructive species. This project was so interesting and such a success that Brunner remained with the staff and continued the investigation of forest insects in Montana.

"When the forest insect field stations were established in 1911, Brunner was placed in charge of Station 1, the Northern Rocky Mountain station, with headquarters at Columbia Falls, Montana. Several years later headquarters were moved to Missoula. Studies were made of the Black Hills beetle in eastern Montana and of the mountain pine beetle and western pine beetle in western Montana. Several control projects were carried on in cooperation with various owners. Special work was done on pitch moths and three Department bulletins were published: #111, 'The Sequoia Pitch Moth, A Menace to Pine in Western Montana'; #255, 'Douglas-fir Pitch Moth'; and #295 'The Zimmerman Pine Moth.'

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[27] Chief of the Bureau of Entomology, U.S. Department of Agriculture.

"Brunner continued with Forest Insect Investigations until 1917 when because of serious differences with Dr. Hopkins he was separated from the service. He then moved to West Virginia to engage in farming. In the opinion of the writer Brunner was a good investigator and keen observer.

"George Hofer, 1863-1944, was one of the men selected by Edmonston from among the woodsmen employed on the Northeastern Oregon project for a permanent appointment as Agent. He was born in Switzerland, but little is known about his early life. Previous to his employment by the Bureau of Entomology, he seems to have been engaged in mining activities around Sumpter, Oregon.

"Edmonston had Hofer with him on all of his moves after the Northeastern Oregon Project closed down. They were together at the field stations at Klamath Falls and Ashland, Oregon; Colorado Springs, Colorado; and Tucson, Arizona. Hofer was promoted from Agent to Entomological Ranger and then to Scientific Aide and had reached the Senior Grade when he was retired in October 1927 for disability.

"Hofer was a careful worker and much of his time was spent on collecting and studying the biology of forest insects in Colorado and Arizona. Many of the records on round-headed borers published by F.C. Craighead and on flatheaded borers published by Burke were made by Hofer. He published Farmers' Bulletins 1154 'The Aspen borer and How to Control It,' and with Craighead Bulletin 1197 'Protection of Mesquite Cordwood and Posts from Borers.'

"Hofer seems to have been a confirmed bachelor all of his life. His personality was such that he was always well liked by everyone who became well acquainted with him and he formed many lasting friendships. He always referred to himself as 'Geehofer' and was usually called this by friends. Before his retirement he bought a desert place near Sabino Canyon which he called his 'cactus ranch' and it was here that he died March 25, 1944, at the age of 80.

"Bartle T. Harvey was forest assistant on the Crater National Forest of western Oregon in 1910. Because of difficulties with the Supervisor, Harvey was transferred to the Whitman about June 1 and assigned to the insect work. After some instruction in insect reconnaissance, Harvey made a survey of the Wallowa Forest and then a trip through central Oregon and the Blue Mountains of southeastern Washington, reported on insect conditions in the Malheur, Deschutes and Wenaha Forests. Despite this work which was very satisfactory to the Bureau, Harvey was asked by the Forest Service to resign and did so on November 30, 1910."

Harvey's report on the Malheur National Forest dated July 1910 drew particular ire from Hopkins because Harvey reported some rather crude experiments to control bark beetles by girdling infested trees. Hopkins in a long letter to Burke on November 22, 1910, stated in no uncertain terms that experiments and observations on biology were out of place in a report that was "...supposed to deal with the forester's part of the cooperative work." There was more than a little protection of turf in those days as well as now.[28]

[28] See footnote 1.

"Harvey was the son of F.L. Harvey who was entomologist of the Maine Agricultural Experiment Station and Professor at the University of Maine about 1889 to 1900. Due to a change in administration Professor Harvey lost his position and killed himself. This tragedy had an unfortunate influence on the growing son which he was never able to overcome. It developed into a distrust of his fellowmen which probably explains some of the actions which followed. Harvey was a graduate of the University of Maine and of the Yale Forestry School. After graduation he worked one year for a Maine timber company and then took the U.S. Civil Service examination. From this he was appointed a forest assistant in the Forest Service and assigned to District 6. Upon his resignation after the 1910 work on the Northeastern Oregon Control Project. Harvey went to Portland and took up newspaper work. This was not very successful."

This is the same Harvey who wrote the article critical of the Forest Service handling of bark beetle control that appeared in the Portland *Oregonian* in 1911.

"Some time in 1912 Harvey was appointed an entomological assistant in the Bureau of Entomology and assigned to forest insects. His first problem was the study of fire-killed and insect-killed timber to determine the damage caused by borers and other insects. Most of this study was conducted in the lower Columbia River basin.

"When Forest Insect Station 6 was moved from Klamath Falls to Ashland in the winter of 1912, Harvey was stationed there and made a study of the California *Prionus* and the effect of the root-boring habits of its larvae on the dying of the tops of oaks and other trees. I believe he discovered that the larvae left the roots to pupate in the soil.

"In 1913 Harvey was transferred to Station 2 at Colorado Springs. This transfer was made against his wishes. While in Colorado, Harvey made a number of very good notes on the biologies of various species of Buprestidae. Late in 1915 or early in 1916, because of a matrimonial tangle, Harvey was transferred to Station 1 at Missoula. This transfer was supposed to give him another chance, but orders went ahead to Brunner in charge of Station 1 that Harvey was no good and to get rid of him. At this time, the relations between Brunner and the Chief of Forest Insects were not too good, so Brunner and Harvey got together and preferred charges against the Chief. The charges were considered, the Chief was reprimanded, but Brunner and Harvey were separated from the Service in 1916."

Thus ends H.E. Burke's account of the Northeastern Oregon Bark Beetle Control Project, but efforts to control bark beetles in eastern Oregon continued. The results of the work around Baker were mixed.

During July and August 1913, J.F. Pernot, Forest Examiner for the Forest Service, made an extensive bark beetle survey of the Whitman National Forest, that was apparently independent of any Bureau of Entomology involvement.[29] He found that mountain pine beetle damage in ponderosa pine stands in the area where control work was done in 1910-11 "...has nearly ceased, but pure lodgepole pine stands throughout the forest continued to have heavy mortality caused by the beetle." Pernot recommended "...that no extensive projects be attempted to control this beetle because the stands endangered were mostly lodgepole pine with little or no present value." He pointed out that the areas of heavy infestation were so extensive that the cost of attempted control would be beyond reason.

Pernot had also been busy surveying beetle-caused losses to lodgepole and ponderosa pine in the Ochoco National Forest.[30] Ephriam Barnes who transferred to the Ochoco National Forest as Deputy Supervisor in 1911 evidently brought some zeal for bark beetle control with him, or perhaps the Forest Service transferred him because of his experience with bark beetle control operations. In winter 1910, four rangers were sent to the Badger Creek watershed to control a small (about 1 acre) infestation of mountain pine beetle in lodgepole pine. This is the same control project mentioned earlier that created such a fuss over costs when brought to light by District Forester George Cecil in the *Oregon Daily Journal*, Portland, February 13, 1911. Results were negligible; therefore, in spring 1912, the Forest Service spent $2,800 treating 3,400 infested trees in the same area under the leadership of Barnes, with apparently good results. In spring 1913, $6,500 was alloted by the Forest Service to control bark beetles in several watersheds on the forest.[31] This work was apparently done independently of the Bureau of Entomology, because there are no records of Bureau personnel participating or commenting on this work. As a matter of fact, both Pernot's and Hodgson's reports refer to the control projects as "experiments," which would be contrary to the policy at the time of putting Bureau of Entomology personnel in technical charge of control and experimental projects. Perhaps the Ochoco work slipped through the crack of remoteness and poor communications of the period.

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[29] Pernot, J.F. 1913. The insect situation in 1913 on the Whitman National Forest. 13 p. Unpublished report. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

[30] Pernot, J.F. 1913. The technical phase of insect control operations with special reference to the 1913 operation on the Ochoco National Forest. Unpublished report. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

[31] Hodgson, Allen H. The control of *Dendroctonus monticola* and *D. brevicomis* on the Ochoco National Forest 1913. Section I: The administration of the operation. Unpublished report. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

J.F. Pernot was perhaps the first person in Oregon to be killed while working on forest-insect-related duties. He died from an accidental fall from a horse in the Ochoco National Forest in June 1914.[32]

After the camps closed, Burke, Angell, Riggs, and Sullivan went to Yreka, California. There, Burke headed up the Moffat Creek, Craggy Mountain, and Barkhouse bark beetle projects with the Forest Service and the Southern Pacific Land Company and faced continued controversy over Hopkin's "75 percent control principle."[33] (This is another story worth recording). In the Pacific Northwest Region, the Forest Service continued doing their beetle control work in the Ochoco National Forest, with no Bureau of Entomology participation and evidently some suspicion of Bureau "bug men" in general, because they eventually hired their own entomology expert, A.J. Jaenicke, to be in charge of insect surveys. The remaining bug men scattered. Edmonston, Hofer, and Sergent moved to Parker Station near Klamath Falls, where they were in demand by several large private timber companies who wanted to control bark beetles on their holdings.

Probably the most important achievement of the project were the cooperative stratagems developed by Burke, Edmonston, Turner, and others that encouraged diverse organizations and individuals to work together. This resulted in a pattern of cooperation on insect-control projects that has lasted to the present and is taken for granted today.

The next major cooperative effort to control bark beetles in eastern Oregon was the short-lived Parker Station Project, which led up to the Southern Oregon-Northern California project mentioned earlier. That project will be the subject of my third article on early forest entomology in Oregon.

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[32] Jaenicke, A.J. 1926. Unpublished newletter, Western Forest Insect News, U.S. Department of Agriculture, Bureau of Entomology, Forest Insect Investigations, Stanford University, Palo Alto, California. On file with: B.E. Wickman, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, Oregon 97850.

[33] See footnote 5 in Editor's Introduction.

It might be fitting to close this story with a short verse by the bard of that latter project:

Early in the spring when the ground is yet damp,
The Bug men rush out and set up a camp.
They hire 'em a cook and haul out some grub,
and then proceed to go after the bugs;
Some can see money in stacks a foot high
While others advance with a groan and a sigh.
But the volume they get would cover a slate
For they go out early and come in late.
They cut down the trees and burn up the bark
Their smoke can be seen from daylight till dark.
The season is short and camp soon shuts down
And most of the boys hike out for a town;
They stop in the city and enjoy a rest
With a real easy conscience for each did his best,
and all will return to camp in the fall
As sure as old Dobbin returns to his stall.

F. W. Masterson
One of the gang.
Bly, Oregon 1921

Acknowledgment

This history would not have been possible without Charles Sartwell, Pacific Northwest Research Station Entomologist and Robert E. Dolph, retired Forest Service Entomologist saving some reports and memoranda dating back to 1910-11. If they had disappeared into the black hole of "storage," I could have not recounted the U.S. Government side of the story. I am also indebted to the librarians and services of the Baker County library, and Eastern Oregon State College library for furnishing microfilm copies of Oregon newspapers and census reports of that era.

Finally, the following reviewers improved the manuscript: Douglas C. Allen, Professor, State University of New York, Syracuse, N.Y.; J.S. Yuill, retired Forest Entomologist, San Diego, California; Charles Sartwell, Forest Entomologist, Pacific Northwest Research Station, Corvallis; and Russell G. Mitchell, Forest Entomologist, Pacific Northwest Research Station, Bend, Oregon.

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UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
BRANCH OF FOREST INSECT INVESTIGATIONS,
WASHINGTON, D. C.

TO OWNERS AND OTHERS INTERESTED IN THE PROTECTION OF THE PINE TIMBER OF NORTHEASTERN OREGON FROM DEPREDATIONS BY BARKBEETLES.

Extensive investigations carried on by experts of the Bureau of Entomology, assisted by officers of the Forest Service and interested owners of timber, have revealed the fact that a large percentage of the pine timber in northeastern Oregon has been killed during the past five years by an insect known as the mountain-pine beetle.

While heretofore this beetle has confined its principal depredations to the lodgepole pine, it is now gradually adapting itself to the yellow pine, thus threatening the best trees and stands of this timber on and adjacent to the Wallowa and Whitman national forests.

According to the conclusions and recommendations of the expert of the Bureau of Entomology in charge of forest insect investigations, based on the reports of the representatives of the Bureau, of the Forest Service, and of private owners, who have conducted special investigations to ascertain the facts relating to the technical and practical features of the problem, it is evident that unless the proper steps are taken to control the depredations, many millions of dollars' worth of the best yellow-pine timber of the area will be killed within the next few years.

It appears that it is not practicable to undertake at this time to control the depredations in the lodgepole-pine areas, but it does appear to be entirely practicable to control them in the principal yellow-pine areas in and adjacent to the eastern part of the Whitman and southwestern part of the Wallowa national forest at a cost of from $30,000 to $100,000, and thus prevent, within the next five or ten years, the further death of timber, which, judging from the history of similar depredations by this beetle in other sections of the Rocky Mountain region, is certain to be worth, in stumpage values, several millions of dollars.

The depredations in and adjacent to the yellow-pine areas are so extensive and the number of infested trees is so large that control work, if attempted with any prospect of success, with the limited funds that might be available from all sources and the limited number of laborers who could be secured for the work, must be by the methods of cutting and barking, and cutting and burning, the required number of infested trees at direct expense. It is also certain that unless there is a very general cooperation, by all of the principal owners and interests involved, in an energetic effort to carry on the work according to a plan of procedure definitely agreed upon and based on established principles and requirements, nothing of importance can be accomplished.

Extensive experiments with methods of controlling this class of beetles have been conducted, according to the requirements and instructions of the experts of the Bureau of Entomology, by private owners and by the Forest Service direct, or in cooperation with other interests, in five different areas in Colorado and two in Montana. All of these have been successful in controlling the depredations, and all have demonstrated conclusively that such work will pay, in the timber protected, an enormous profit on the money expended.

These demonstrations and experiments have also shown that if from 35 to 75 per cent of the infested timber in the principal centers of infestation within the radius of one or more townships is felled and barked or otherwise disposed of within the required period to kill the broods of insects in the bark, the remaining living timber will be protected from depredations for many years after.

The direct expense of cutting and barking and cutting and burning the infested trees has ranged from 15 cents to $1 per tree, or an average of about 50 cents per tree. Whenever the beetle-infested timber has been utilized within the required period, the desired control has been effected without

ultimate cost. When the timber is felled and barked at direct expense, the merchantable timber thus treated is usually available for utilization for two or more years after it is cut, and the amount that can usually be sold and converted into lumber will yield enough revenue to cover a large percentage, and in some cases all, of the original cost.

The Bureau of Entomology has no funds that can be devoted to direct control work, but it will devote all available funds and men toward locating the infested timber, directing the operation of marking the same for cutting, and giving technical advice and instructions on the essential features of the control work, provided it has sufficient assurance from the owners and others directly concerned that its recommendations will be adopted and carried out, so far as it is practicable to do so.

The Forest Service has given assurance that during the months of October and November it will devote all available funds, amounting to at least $5,000, to direct control work in an important center of infestation located by the experts of the Bureau of Entomology in the yellow pine on one of the national forests; also, that it will endeavor to secure a special emergency appropriation to continue the work next spring in the same or other centers, provided the principal private owners of affected or threatened timber in or adjacent to these centers will give similar assurance that they will cooperate in an attempt to dispose of the required proportion of the infestation on their property.

Therefore, if you are interested in the protection of the timber from further depredations by the beetle, are you willing to join the Forest Service in an organized cooperative effort to adopt and carry out the recommendations of the Bureau of Entomology for the treatment of the required percentage of infested trees and to take the necessary action relating to the infested timber which may be located and marked on the property in which you are directly or indirectly interested?

If the timber on the lands in which you are interested is found to be healthy, are you willing to contribute to a general fund to assist in the disposal of the important centers of infestation which are found to be a menace to it?

Will you make an effort to attend, or have a representative of your interests attend, a meeting to be held at Baker City, Oregon, on September 1, 1910, to discuss and adopt a definite policy of procedure toward the protection of the timber of northeastern Oregon from insect depredations?

An early reply is important, in order that the Bureau of Entomology may judge whether or not it can proceed with its efforts to bring about the required action, or whether it will be necessary to abandon the project and turn its attention to other sections of the country in which similar depredations demand attention.

Correspondence relating to organization for cooperative control work and the general methods of procedure in such work should be addressed to the District Forester, Portland, Oregon.

Correspondence relating to the insect and methods and recommendations for control work should be addressed to Mr. H. E. Burke, Agent and Expert, Bureau of Entomology, Sumpter, Oregon.

A. D. HOPKINS,
In Charge Forest Insect Investigations.

Approved:
L. O. HOWARD,
Chief, Bureau of Entomology.

AUGUST 5, 1910.

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This history, from the memoirs of the entomologist in charge, describes the first large-scale cooperative bark beetle control project funded by Congress in the Western United States. It describes relations between the Forest Service, Bureau of Entomology, and private timber owners, how the project was organized and conducted, and results of the control measures. The editor provides information and interpretations from additional sources and human interest background on participants of this pioneering forest insect control project.

Keywords: Forest entomology, history, bark beetle, lodgepole pine, ponderosa pine.

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

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